NATIONAL PETROLEUM NEWS

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Oil Industry in all its Phases Will be Seen in Exposition and Congress

Staff Special

TULSA, Sept. 28

WITH the opening of the International Petroleum Exposition only three days removed, finishing touches are rapidly being put on the exhibits of 280 manufacturers of equipment for the oil industry who have contracted for space so far this year. Night and day work will be required for some of the exhibitors to enable them to have their booths or open spaces ready for inspection of the industry when the gates of the show are opened for the first time at noon on Oct. 1.

Grounds and buildings have been ready for the placing of exhibits for nearly a month. The management of the exposition has made rather extensive changes in the ground lay-out for the convenience of booth exhibitors and the visitors.

Expecting greater crowds than a year ago when there were nearly 100,000 paid admissions to the grounds, the exposition authorities have added 2½ acres of ground and have re-arranged buildings and open spaces to avoid the congestion which took place at a few points last year. Exhibitors and visitors will have space to park their cars within the ground this year as an added convenience.

Special Trains

An indication of the large number of visitors expected is seen in the number of special trains which have been chartered by oil men in various sections of the country. A special train started today from Bradford, Pa., which will pick up eastern oil men living at Titusville, Oil City, Warren, Franklin, Butler and Pittsburgh. This train will arrive in Tulsa on Sept. 30, a day prior to the opening of the exposition. Other trains are expected from San Antonio, Los Angeles, Fort Worth and Dallas, Chicago and El Dorado. Most of these trains will arrive in time for the opening of the Congress.

Announcement was made this week of the complete program for the third annual International Petroleum Congress which will include speakers from various parts of the United States and representatives from Peru, Venezuela, Guatemala, Mexico and Germany.

Sessions of the congress this year will be held in the crystal ball room of the Mayo hotel which has been completed since the second annual meeting a year ago. The effort to hold meetings on the ground was considered unsatisfactory because of the noise and counter attractions. This year the exposition grounds will not be opened until noon each day and the congress sessions will be held in the morning, adjourning in time for exhibitors and visitors to get to the ground.

Program of Congress

W. G. Skelly, president of the exposition, will open the congress at 10 a.m. on Oct. 5. M. E. Trapp, governor of Oklahoma, will follow with an official welcome on behalf of the state. J. Edgar Pew, president of the American Petroleum Institute, will speak at the opening session of the congress on "American Oil Resources—Supply and Demand." Dr. Santiago F. Bedoya, secretary of the Peruvian embassy, will deliver a paper as official representative of the government of Peru. "Taxation of Oil Properties" a subject especially interesting to Oklahoma producers at this moment will be discussed by W. R. Guiberso of California, and Charles N. Gould, director of the Oklahoma Geological Survey, will close the program for the first day with a description of the mineral resources of Oklahoma.

D. M. Strickland, research engineer for the American Rolling Mill Co., will open the program for Oct. 6, with an address on "The Economy of Pure Iron in the Oil Industry." The official representative from Mexico will appear next followed by an address by H. J. Allen, former Governor of Kansas, on "Oil's Contribution to the Prosperity of the West." Venezuelan problems of oil finding, transportation, refining and marketing will be described by Dr. Manuel Gonzales. "Fuel Oil" is the appropriate subject of an address by Edward P. Bailey, past president of the American Oil Burner Manufacturers Association.

On the final day of the Congress, Oct. 7, Dr. Hellmuth Wolff of Halle University, Germany, is to speak on the "Establishment of the Statistical Service for Petroleum." Contributions of universities to advancement of the oil industry will be discussed by Dr. Walter Dill Scott, president of Northwestern University. K. C. Heald of the National Research Council, Senor Francisco Sanchez Latour, minister from Gautemala, C. F. Kettering, president of the General Motors Research Corp. and Glenn Griswold, editor of the Chicago Journal of Commerce, will be concluding speakers on the program.

Safety Day

One feature of the exposition this year will be a petroleum first aid meet to be held on Oct. 8 under the auspices of the American Safety Council and the Safety Section of the Mid-Continent Oil & Gas Association. First aid teams from various parts of the producing fields will compete for prizes offered by the exposition.

Like last year a great deal of attention will be paid to the oil princesses from various states. They will appear in a number of elaborate parades and at court presentations in the exposition theater. Citizens of Tulsa will entertain the fair guests from other oil states headed by Miss Ramona Marcella Trees of Winfield, Kansas, Queen Petrolia for 1925. At the close of the exposition one of the visiting princesses will be crowned queen for 1926.

Numerous committee meetings of various organizations will be held during the course of the exposition as a matter of economy of time since hun-

dreds of oil and refining companies are requiring heads of departments and field men to come to Tulsa to inspect the exhibits of manufacturers of equipment.

Probably the largest gathering will be the annual meeting of the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association. Members of the other divisions of the association have all been invited to attend the meeting by Secretary Harry H. Smith.

The business session of the association will be held at association headquarters at 2:30 p.m. on Wednesday, Oct. 7. Reports for the past year will be presented and the new executive committee elected.

The annual banquet of the association will be held at 6:30 that evening at the Mayo hotel. W. C. Franklin, Tidal Oil Co., will deliver the president's annual address and introduce Governor M. E. Trapp. Isaiah Hale, safety superintendent of the Santa Fe system, will speak on "The Mind as a Factor in Industrial Accidents." C. F. Kettering, president of the General Motor Research Corp., and A. B. Flanary of Dallas, will speak.

A.S.T.M. Committee D 2

The regular fall meeting of Committee D 2 of the American Society for Testing Materials will be held on Oct. 5 and 6. On Monday various sub-committees will meet at the Mayo hotel as follows: 9 o'clock, XXI Crude Petroleum; 10 a.m., I Petrolatum and III Paraffin Wax; 11 a.m., XXI Calorific Value, and XX Nomenclature; 12:30 XXV Crankcase Dilution; 2 p.m., XVII Gasoline and special sub-committee on lubricating oil specifications (utility factor); 3 p.m., XXIII Carbon Residue; 3:30 VIII Distillation, and 4 p.m. X Oxidation at High Temperatures.

The general fall meeting will be held on Tuesday. In the evening the committee will be entertained by the Western Petroleum Refiners Association at a banquet arranged by the manufacturing committee headed by C. L. Henderson of the Vickers Petroleum Co., Wichita. D. E. Buchanan, vice president of Chestnut and Smith Corp., will act as toastmaster. Speakers will be F. A. Pielsticker, president of the W. P. R. A., K. G. Mackenzie of the Texas Co. and J. Edgar Pew, president of the A.P.I. On the following day the committee will be taken on a tour of the oil fields.

Directors of the Western Petroleum Refiners Association will meet in the Cosden building on the morning of Oct. 6 to discuss general association matters. During the course of the day two other special committees of the association will meet.

Eleven committees of the Association of Natural Gasoline Manufacturers will meet during the three days of the Congress according to an announcement of A. V. Bourque, secretary. The Executive Committee will meet for lunch at the Mayo hotel on Oct. 6 at 12:45. other committee meetings scheduled are as follows:

Monday Morning, October 5, 1925

Tank Car committee Meeting, 10 A.M., Association office.

Sales Managers Committee Meeting, 10 A.M. A. F. Garrett's office, Tidal Refining Co.

Traffic Committee Meeting, 11 A.M., Association office.

Tuesday Morning, October 6, 1925

Gas Testing Committee Meeting, 10 A. M., A. J. Schlosser's office, Barnsdall Oil Co.

Technical Committee Meeting, 10 A.M., C. F. Barton's office, Tidal Refining Co.

Plant Operators Committee Meeting, 10 A. M. Association office.

Gas Residue Committee Meeting, 11 A.M., L. F. Bayer's office, Tidal Refining Co.

Wednesday Morning, October 7, 1925

Specifications Committee Meeting, 10 A. M., L. F. Bayer's office.

Meters, Regulators, Etc. Committee, 10 A.M., Ray Short's office, Prairie Oil & Gas.

Gas Contract Committee Meeting, 10 A.M., J. H. Boyle's office, Chestnut & Smith.

On Thursday, Oct. 8, the Knights of the Derrick will hold their annual meeting on the exposition grounds in the morning. The Mid-Continent Section of the American Institute of Mining and Metallurgical Engineers will hold a smoker at 8 p.m. at the Mayo hotel for visiting members.

Coming Meetings

National Safety Council, Cleveland, O., Sept. 28 to Oct. 2, inclusive.

International Petroleum Exposition, Tulsa, Okla., Oct. 1 to 10 inclusive.

International Petroleum Congress, Tulsa, Okla., Oct. 5, 6, 7.

Carolina Automotive Service Association, at Greensboro, N. C., Oct. 20, 21.

American Oil Men's Association, Congress Hotel, Chicago, Oct. 20, 21, 22.

The American Welding Society, Boston, Mass., Oct. 21, 22, 23.

Texas Independent Oil Men's Association, Houston, Tex., Oct. 23.

Nebraska Independent Oil Men's Association, Omaha, Neb., Oct. 29, 30.

National Petroleum Marketers Association, Louisville, Ky., Nov. 17, 18, 19.

American Petroleum Institute, Los Angeles, about Jan. 18, 1926.

DES MOINES, IA., Sept. 28.—L. F. Kuehnle, head of the Leader Oil Co., Dubuque, Ia., has resigned as president of the Iowa Oil Men's Association. It was offered because of Mr. Kuehnle's ill health which his many friends in the industry have known about for more than a year. The resignation was not accepted by the Iowa jobbers. Mr. Kuehnle was made honorary president and the vice president, H. E. Wormhoudt, Manhattan Oil Co., Des Moines, was instructed to relieve Mr. Kuehnle of all duty during the rest of his term.

M. R. Shepherd, Well Known Jobber, Dies

MILWAUKEE, Sept. 29.—Oil jobbers who have been in the business for the past eight or ten years regret to learn of the untimely dealth of Manton R. Shepherd, president of the Bartles-Shepherd Oil Co., Waterloo, Ia., which was reported in the Sept. 16 issue of National Petroleum News.

Because he was so well known in jobbing circles a few years ago before his health deserted him, there are many old time jobbers and friends in the industry to regret his passing. He was a familiar figure at all conventions a few years ago and will be remembered by the "old timers" as "The Duke of Waterloo".

About five years ago Mr. Shepherd went to California for his health. A month previous to his tragic death, he returned to Waterloo, and there bought a new Cadillac car in which he started back to California. When he was crossing a bridge near Gallup, N. Mex., he turned his car out to let another car pass, and the bridge being defective, gave way, dropping the car about 20 feet. Mr. Shepherd sustained several broken ribs, and his son, Joe, who was with him in the car, was not seriously injured although he was unconscious for 24 hours, according to A. G. Maguire, president of the Bartles-Maguire Oil Co., Milwaukee.

A party driving past the scene of the accident, picked up Mr. Shepherd and his son and took both of them to a hospital. There Mr. Shepherd was thought to be recovering, when suddenly he died.

Mr. Shepherd, who was a son-in-law of Joseph Bartles, leaves a wife and son.

Stolz Asks for Successor On Directorate

MILWAUKEE, WIS., Sept. 28.—Henry Stolz, Bartles-Maguire Oil Co., Milwaukee tendered his resignation to the Wisconsin Independent Oil Jobbers' Association, as a director of the organization at the recent meeting in Green Bay, Sept. 16.

The resignation was made to make room on the directorate for a representative of some other company. Only recently J. M. McLaughlin, a vice president of the state association and head of its advertising committee joined the Bartles-Maguire organization. Mr. Stolz's modest assumption is that one man from one company is enough to hold office in the association.

The "Thunder Bird," official organ of the Wisconsin jobbers' association, announces that Mr. Stolz's successor will be appointed at the next regular meeting. Then also the advertising committee will make its report of the year's publicity campaign and present recommendations for next year's budget.

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Refiners Free to Make Stoddard Solvent

WASHINGTON, Sept. 28.—In advising its members to call upon refiners for a cleaning solvent under the name Stoddard Solvent, the National Association of Dyers and Cleaners of the United States and Canada, with headquarters here, is trying to get the dry-cleaning trade away from the use of the volatil gasolines and naphthas that have heretofore been used. This is according to a statement recently made by executives of the association here to a National Petroleum News representative.

The association states the name is not copyrighted nor is there any special or patented process involved in any way in its manufacture. The specifications for the product have been published in the Sept. 16 issue of National Petroleum News, and the methods by which tests are made to determine these specifications are those of the Committee on Standardization of Petroleum Products for the government, as published by the Bureau of Mines in Bulletin No. 5.

The cleaner who prefers to use gasoline in his operations is under no compulsion to use the solvent recommended by the association. Many of the national marketing oil companies and some refiners have been making a product very similar to the Stoddard's Solvent, which calls for a naphtha with a very narrow range of distillation points, for a paint thinner. These are sold under trade names of the individual company in most cases. The object of the cleaners' association is to attach a well known and easily remembered name to a product it regards as meeting the needs of the cleaning trade to a greater degree than the more volatil gasolines previously used. All that the association asks is that any refiner selling a cleaners' product as Stoddards Solvent makes sure that it meets the specifications which have been issued.

"Red Hat" Argument Oct. 13

CHICAGO, Sept. 28.—The contention of the Standard Oil Co. of Indiana that the trade mark, "Red Hat," belonging to the Independent Oil Men of America, is an infringement upon their trade mark, "Red Crown" will be argued orally, pro and con, in Washington on Oct. 13. Oral arguments are not the rule in "opposition" cases at the patent office. Ordinarily cases before the Examiner of Interferences are decided on briefs. George A. Chritton, patent attorney for the Standard, requested that the matter be argued orally.

FORT WAYNE., IND.—The Red Fox Petroleum Co., with headquarters here, recently opened a brokerage office here and established connections with several refineries. The new business is piloted by "Bob" Hart, president of the Knox Oil Co., Mt. Vernon. O., according to O. J. Geary, of the Red Fox company.

National Petroleum News

Compilation Of Mid-Continent Refinery Operations

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124 Refiners Make Small Addition to Stocks of Gasoline

TULSA, Sept. 29

AN ADDITION of approximately 500,000 gallons to gasoline stocks in the week ended Sept. 25 was the first increase in inventories since Aug. 7 at the 124 refineries reporting weekly to National Petroleum News. Production of 31,591,251 gallons was over 600,000 gallons below the preceding week.

Shipments of 31,042,173 gallons represented a decrease of 5,500,000 gallons below those in the week ended Sept. 18 and were marked by a decline in each of the reporting areas. Stocks were increased in all areas except Texas where a decline of 137,000 gallons was reported.

Daily average runs to stills were 321,614 barrels, an increase of 2477 barrels. Kansas refiners increased their runs 6639 barrels to 82,040. Throughput at Oklahoma plants remained practically unchanged and declines of 1.2 and 1.9 per cent at Texas and Louisiana-Arkansas refineries respectively partly offset the increase in Kansas.

The heavy drain on kerosene stocks in the Mid-Continent district which has been in progress since the middle of July continued during the past week, when Kansas refineries reported a very large increase in shipments and a reduction of around three million gallons in inventories. For the field as a whole kerosene stocks declined nearly four million gallons to 15,670,786 gallons.

Gas and fuel oil output declined 568,000 gallons to 39,440,123 gallons. Shipments slightly exceeded those of the previous week and the 46 Oklahoma plants were the only group reporting decreased stocks.

At the rate of shipments maintained during the week gasoline stocks represented 11 days' supply, kerosene 12 days' and gas and fuel oil 39 days' supply.

Summary for Month

Production and shipments, all reporting refineries for four weeks ended Sept. 25. Change in stocks figured from Aug. 28.

Gasoline

	Gallons
Production	126,639,298
Shipments	140,216,472
Net change in stocks	—13,577,174
Ratio sales to production	110.7%

Kerosene

Production	24,814,372
Shipments	27,258,587
Net change in stocks	—2,444,215
Ratio sales to production	109.8%

Gas and Fuel Oils

Production	159,627,887
Shipments	141,643,931
Net change in stocks	+17,983,956
Ratio sales to production	88.7%

TULSA, Sept. 28.—The newest deep sand well in the Garber field is the Mid-Continent Petroleum Corp. and Marland Oil Co.'s No. 47 School in the northwest corner of the southeast of 13-22-4w, a half mile north and west of the discovery well. This well produced 1120 barrels the first 24 hours in sand from 4420 to 4424 feet. The three offsets, two owned by Sinclair and one by Roxana, have been in for some time and all are making considerable water.

Mid-Continent Refinery Operations Week Ended Sept. 25 (By Fast Wire)

	Kansas	%Change Previous Week	Oklahoma	%Change Previous Week	No. & Cent. Texas	%Change Previous Week	No. La.-Ark.	%Change Previous Week	Total	%Change Previous Week	Totals Week Ended Aug. 28
No. of Plants	23		46		41		14		124		124
Da.Still cap.(bbl.	98,200		165,900		144,300		51,700		460,100		456,800
Da.Av.Crude Run	65,721		111,070		63,851		33,117		273,759		286,318
Da.Av.Other Oils	16,319		13,116		10,463		7,957		47,855		57,689
Da.Av.Total to Stills	82,040	+ 4.3	124,186	+ 0.7	74,314	— 1.2	41,074	— 1.9	321,614	+ 0.8	344,007
GASOLINE—Gallons											
Stocks, Sept. 18	7,460,567		23,436,643		15,279,809		2,541,840		48,736,859		64,626,138
Prod., 9-18—9-25	9,126,840	+ 1.0	13,689,965	— 2.6	6,701,890	— 2.7	2,072,556	— 6.7	31,591,251	— 1.9	34,737,533
Ship., 9-18—9-25	8,755,957	— 8.3	13,621,330	—22.0	6,838,998	— 7.6	1,825,888	—14.5	31,042,173	—15.1	36,500,560
Stocks, Sept. 15	7,831,450	+ 5.0	23,505,278	+ 0.3	15,160,701	— 0.9	2,788,508	+ 9.7	49,285,937	+ 1.1	62,863,111
Ratio Sales to Prod	95.9%		99.5%		102.0%		88.1%		98.2%		105.1%
KEROSENE—Gallons											
Stocks, Sept. 18	9,281,434		3,578,529		5,886,249		276,740		19,022,952		17,667,775
Prod., 9-18—9-25	1,875,445	— 0.6	1,845,319	+ 5.7	1,718,357	—12.0	457,536	+69.5	5,896,657	+ 0.7	6,909,504
Ship., 9-18—9-25	4,995,750*	+224.1	1,760,033	— 7.6	2,159,079	+19.7	333,961	+20.9	9,248,823	+67.4	6,462,278
Stocks, Sept. 25	6,161,129	—33.6	3,663,815	+ 2.4	5,445,527	— 7.5	400,315	+44.7	15,670,786	—17.6	18,115,001
Ratio Sales to Prod	266.4%		95.4%		125.6%		73.0%		156.8%		93.5%
GAS AND FUEL OILS—Gallons											
Stocks, Sept. 18	22,757,774		106,010,292		59,105,550		14,895,520		202,769,136		187,894,281
Prod., 9-18—9-25	8,553,729	— 0.5	12,663,608	— 5.9	9,603,078	+ 2.5	8,619,708	+ 1.7	39,440,123	— 1.2	41,672,001
Ship., 9-18—9-25	7,336,805	—23.4	12,864,259	+27.6	8,910,605	— 5.6	7,816,539	+ 0.2	36,928,208	+ 0.1	42,269,187
Stocks, Sept. 25	23,974,698	+ 5.3	105,809,641	— 0.2	59,798,023	+ 1.2	15,698,689	+ 5.4	205,281,051	+ 1.2	187,297,095
Ratio Sales to Prod	85.8%		101.6%		92.8%		90.7%		93.6%		101.4%

*Two Kansas refiners have transferred 3,000,000 gallons of home heating distillates from kerosene to gas and fuel oil storage figures in the above report.

New Deep Sand in Sunset Field will be Drilled Slowly

By Special Correspondent

LOS ANGELES, Sept. 26

THE immediate danger of turning loose a flood of oil in California from the deep zone in the Sunset field at Maricopa has apparently been removed by an agreement reached Friday by about 20 operators having large holdings in that district.

The large flow of oil from the Obispo Oil Co.'s deep test was sufficiently threatening to cause the operators to make plans to delay drilling in this district until the already large production of the state declines and the present uncertain market, reflected in the recent reduction of crude oil prices, has found a firmer level.

According to an announcement made by Charles A. Son, Long Beach and Maricopa operator, who was chairman of the operators' meeting, it has been tentatively agreed that for the present no company will drill more than one well into the new gusher zone. For the permanent development of the zone, operators have reached the understanding that not more than one well is to be drilled on each 20 acres.

The operators appointed a committee consisting of representatives of the Pacific Oil Co., Obispo Oil Co., General Petroleum Corp., and California Petroleum Corp., which is to meet within a week and undertake to set up the temporary drilling program.

The action was made necessary by the discovery, five weeks ago, of the deep zone at Maricopa by the Obispo Oil Co. in its No. 6 well, a deepening job. The well blew in as a 10,000-barrel producer, flowed for about a week and then sanded up. Since then it has been cleaned out and is again ready for production.

The prospect of getting gusher production in the old Sunset field, which extends for several miles over the Maricopa flats, caused several companies to plan intensive drilling campaigns. Several holes were already near the Obispo sand when the meeting was called and it appeared probable that a half dozen wells could be brought in from the deep sand in about 30 days.

Big Companies Interested

Some of the big companies began buying acreage at high prices and it looked as though a frenzied development campaign was going through, but the operators appear to have gotten together on such a basis that the deep zone may be converted into a substantial oil reserve. Among the companies which are extensively interested in the district are the General Petroleum Corp., Trojan Oil Co., Milham Exploration Co., Transport Oil Co., Miocene Oil Co., California Petroleum Corp. and Pacific Oil Co.

The Obispo well hit either a rich sand or the brown shale at a point near 4200 feet. Operators now believe that it went into regular oil sand, but there are some who think the well came in from a deep formation which underlies nearly the entire Sunset field, which is one of the oldest producing areas in the San Joaquin Valley.

The well is located a mile and a half from the famous Lakeview No. 1 gusher which flowed at the rate of 65,000 barrels per day, back in 1910. The Lakeview, which produced from a shallow sand, is up on the slope of the hills while the Obispo is down on the flats. Since the Obispo came in, California operators have shut in more than 1000 wells, chiefly in the Kern River fields, holding back about 30,000 barrels daily, but, despite the shutting in, San Joaquin Valley produced 35,686 barrels more in August than were produced in July.

All that was shut in was offset by production from a number of new wells and the Obispo gusher's production for about 10 days ran the month's output higher than usual.

Lull at Dominguez

Efforts to control crude production in California will be somewhat furthered by a sag at Dominguez, where the Associated Oil Co.'s production on the De Francis lease, once above 16,000 barrels a day is now down to 1400 barrels. Two of its wells have stopped flowing and another is making salt water. The Marland Oil Co.'s deep test there appears definitely beyond possibility of getting production, although it discovered a deeper sand for operators higher up on the structure. With Marland through, Associated's wells declining fast and the remainder of the field in the hands of the Union and the Shell, neither of whom are in a hurry to get more production, Dominguez is likely to be a dead issue for some time.

World's Deepest Producer flows from Sand Topped at 7300 feet

By Special Correspondent

LOS ANGELES, Sept. 26

E. J. MILEY, head of the Miley Oil Co., has just placed on production in the Athens area of the Rosecrans field the deepest oil producer in the world. It started flowing Friday from a depth of 7591 feet, making 1500 barrels the first 24 hours. Today, the head of gas which had built up back of the casing diminished and the well showed about 400 barrels. The oil cuts about 8 per cent salt water and tests 36 degrees gravity.

In the completion of this hole, Miley claims several world's records, including the drilling of the deepest hole, setting the longest string of casing, finding the deepest oil sand and getting a flowing well from the greatest depth ever known. The hole has 127 feet of oil formation which was found at 7303 feet, this being 700 feet deeper than the former world's record deep sand which was found by the General Petroleum Corp. in its Amestoy No. 1 in the Athens field, at 6600 feet. Miley shattered the depth drilling record set by the Union Oil Co. when it drilled its Gardena No. 1 at Dominguez to a depth of 7319 feet and abandoned it as a duster.

Two Strings of Pipe

The Miley well had two water shutoff jobs. There are only two strings of pipe in the hole. Eight-inch was set at about 4900 feet and there is a string of 4¼ the rest of the way.

The drilling record of the well shows that the well was put down to 7395 feet in 183 days actual drilling time. It first stood cemented eight days, lost only 10 days in fishing and milling and used five days in making up drill pipe and repairing the rig. The well was idle for 38 days while the crew was being used on other wells.

Included in the actual drilling time of 183 days was the taking of cores numbering 135. These figures give the well an average of 40 feet of hole per day during drilling time.

Eastern Well is Deeper

CLEVELAND, O., Sept. 26.—Without taking away any of the honor attached to the completion of the deepest producing well in the world, set forth in the foregoing Los Angeles dispatch, California must not claim all the records.

Down near Ligonier, Pa., which is in Westmoreland county and getting near the mountains, a sign on a derrick informs the tourist that he is looking at the deepest well ever drilled. Its depth was 7752 feet when the writer last inquired about it, which was two or three weeks ago. It was believed that it would be abandoned at that depth.

The Miley well in California is the deepest oil producer. The Pennsylvania well is the No. 2 Booth & Flinn of the Peoples Natural Gas Co., which has put down some other notable wells in the past. The Booth & Flinn well found some gas at 7428 feet, but not in commercial quantity.

An interesting comparison, although not a fair one, is seen in the time required to drill the California and the Pennsylvania wells. The California well was a rotary job, drilled to pay sand in 183 days actual drilling time and in that time averaged a little better than 40 feet per day. The Pennsylvania

job was under way about two years, averaging a little more than 10 feet per day.

The unfairness of the comparison lies in the fact that the Pennsylvania drillers were fighting their way through a variety of formations that prevented their making anything like decent time. Bad caves had to be fought and along at the last they were working their way through formations so hard that a foot a day was about all that could be drilled. Some of the sand brought up was hard enough to cut glass. Bits had to be dressed frequently.

The Pennsylvania well started with a 16-inch hole and set five strings of pipe, including the conductor. The last string is 6794 feet long and is welded, top to bottom. It is 5-inch outside diameter and has inside diameter of 4.064 inches. Its weight is 22.869 pounds per foot. This pipe was specially made up by the mills in 40-foot lengths.

The derrick on the Booth & Flinn well has 26-foot base and is 96 feet high. It is on concrete foundation. It is double braced and cross braced and in each corner running full length to top is 6 by 8 inch bolted to 8 by 8 inch timbers. Girts are doubled 2 by 12 inch.

The intention of the company was to make everything equal to any demand that would be put on it and executives say that if they were to undertake a similar job, they can't think of a thing they would change. Everything employed was extra-heavy.

Heavy Crown Block

Casing was all handled with ring and slips. Ten casing lines were used and one casing block. The pulley block weighed 5800 pounds. Rig irons were 7½ inch. Chain-driven sand reel was used.

At the start a 14 by 14 steam engine was used. Later a 14 by 14 engine was put into service and when the pipe handling job became extra heavy, a 16 by 16 engine, rated at about 70 horse power, was installed.

Bull wheels and band wheel were extra heavy. The outfit used four bull ropes and two 16-inch brakes. A 16-inch camels hair belt was in service.

Two 30-horse power boilers were the initial installation but later a 80 horse power boiler was employed.

Along at the last the steel cable used was 1-inch at the upper length and tapered to seven-eights inch, the lower 6000 feet being of this size.

Temper screw was 3-inch.

An idea of the time used in getting in and out of the hole at these deep wells is seen in the fact that at its greatest depth it required 26 minutes to come out with the tools and 18 minutes round trip with the bailer.

TROY, PA.—Henry B. Van Dyne, of the Van Dyne Oil Co., this city, has added two new lubricating oil storage tanks to his equipment.

Purchasers to Discuss Warehousing of Oil Field Supplies

By A. F. Hinton

N. P. N. Staff Writer

TULSA, Sept. 26.—Economic methods of distributing oil field material will be discussed at a session of the Oil Company Buyers' group of the National Association of Purchasing Agents, in Tulsa, Oct. 6, during the International Petroleum Exposition. This will be the first meeting of this group since its organization at the national convention of purchasing agents in Milwaukee last May. George C. Pohler, purchaser for the Mid-Continent Petroleum Corp. (Cosden) is national chairman, and has been in charge of arrangements for the coming meeting.

The general subject for the meeting is: "What shall be our policy concerning warehouse material, including second-hand material from field operations?" No set speeches have been assigned, but everybody present is urged to take part in the discussion. All supply men and other persons interested in the distribution of field supplies, as well as purchasers, have been invited to attend, and more than 60 sales executives already have signified their intention of accepting the invitation. In addition to the hundred or more members of the Tulsa associations, some 60 purchasers located in the United States, Canada, and Mexico, likewise have said that they will be on hand.

The main idea back of the discussion has to do with the large number of field supply depots maintained by the supply companies, the overhead expense of which must be added to the expense of buying material by the oil companies. It is believed that present-day purchasing methods are steadily tending more toward centralized buying, with less emergency or field buying, and that this, with improved transportation facilities now available, lessens the need for so many field depots. The purchasers believe that a reduction in the number of field stores will result in lower operating costs for the oil companies, at the same time reducing the cost of distribution to the supply companies. At the conclusion of the conference, Mr. Pohler's Oil Company Buyers' group will submit its recommendations as to how it believes field distribution can be simplified and bettered.

"The meeting is not to be considered as a criticism of present-day methods," said Mr. Pohler. "We will frankly discuss the economic question which confronts not only the oil company buyers and distributors of oil industry equipment, but every manufacturer in existence today, 'Cost of Distribution.'"

In telling a recent meeting of the Tulsa Purchasing Agents association of the coming meeting, Mr. Pohler said in part: "Methods of buying by the modern and aggressive purchaser during the past two or three years have been radically different from methods of former years. Transportation facilities have been advanced and revolutionized. The warehousing problems of today bear little if any semblance to those of two or three years ago. The purchaser, analyzing his costs of doing business, finds many items of expense thrust into the overhead of the vendor today which are inconsistent with modern interpretations of economy.

"Little if any change in the procedure of establishing branch stores and warehouses in the oil country is apparent today, as compared with the same plan and policy followed 20 or 30 years ago. The expense of conducting these branches eventually finds it way into the vendor's cost of doing business, and the purchaser is compelled to pay a net rate of earnings based on volume of business done and costs of transacting the same. Hence the policy followed in warehousing materials and supplies for the oil industry is of direct and personal interest to us as buyers."

Lubrication Chart

CHICAGO, Sept. 25.—The engineering division of the Valvoline Oil Co. recently made available to engineers of customers and lubricating men in general, one of the most comprehensive charts of recommendations ever published. The chart is 2½ x 3 feet and is printed in exceedingly small type, giving lubrication recommendations for all manner of passenger cars, motor trucks, busses, fire pumps, agricultural tractors and other machinery, industrial tractors, railroad cars, motorcycles, insulated electric machinery etc. These machines are mentioned by name and model from 1921 to 1925.

TULSA, Sept. 28.—The C. J. Tagliabue Manufacturing Co. will occupy spaces 94 and 95, Texas building, at the International Petroleum Exposition. The company will be represented by R. M. Wilhelm, division sales manager and H. Jungerman, sales engineer.

The exhibit of the company will be complete as to number of products and will include the new Tag thermostatic four tube Saybolt viscosimeter; the Tag peerless temperature controller; the 12-inch size Tag mercury recording thermometer; all of which embody new or recent features; and an exhibit of representative Tag oil testing instruments, well known in the oil industry.

Dubbs Sues Skelly Oil Co. Charging Jenkins Process Infringes

Staff Special
TULSA, Sept. 24

A GENERAL campaign of litigation to establish its cracking patent claims, by the Universal Oil Products Co., (owner of Dubbs patents) is forecast in a suit filed in the U. S. District Court at Wilmington, Del., by that company against the Skelly Oil Co. The bill of complaint was filed on Sept. 12, but has not been answered as yet by attorneys for Skelly.

No specific allegations are made in the bill filed by the Dubbs interests, and it could have been filed against any other refiner using a cracking process by simply changing the name of the defendant company.

The Skelly Oil Co. operates the Cross cracking process and the Jenkins cracking process at its 15,000-barrel refinery at El Dorado, Kan. While the bill of complaint does not indicate which process used by Skelly is claimed to be an infringement of the Dubbs patents it is generally presumed that the suit is aimed at the Jenkins process.

Much of the development work on the Jenkins process was done at the Skelly refinery. Engineers of the company aided in perfecting the mechanical equipment which is utilized in the current installations.

Jenkins A Newcomer

It has only been in recent months, however, that active work has been done in pushing the sale of process installations. The Graver Corp. of Chicago, has charge of sales for the Jenkins Petroleum Process Co. and has made a number of sales. The process as it is carried on at the Skelly refinery was described completely in the March 4 issue of National Petroleum News, on page. 72.

The Jenkins process mechanically circulates charging stock through a bank of tubes subjected to heat surmounted by a shell still. Operating temperature is around 750 degrees F. and pressure approximately 110 pounds per square inch. Vapors from the still are carried direct through a series of towers and water white end point gasoline of high gravity is taken direct from the bubble tower.

The present suit is the first which has been aimed at the Jenkins process by any of the holders of cracking patents, if, as is presumed, the suit is not directed at Cross. If Dubbs had intended to sue a Cross licensee, however, it is thought that a company would have been chosen which has installed a greater number of units of that process.

New Patent Club

A fact not generally known to the refining industry is revealed by Dubbs in the bill of complaint against Skelly. The petition reveals that a small patent club has sprung up to rival the larger combine in which Burton, Cross, Holmes-Manley, Ellis and other patents have been pooled. The new club has been formed by Dubbs and the Shell Co. of California, owner of the Trumble patents.

CLEVELAND, Sept. 25.—The following letter has been received by National Petroleum News, signed by J. G. Alther, secretary of the Universal Oil Products Co.

"On Sept. 12, 1925, suit was filed by us in the U. S. District court at Wilmington, Del., against the Skelly Oil Co. for their operation of the so-called Jenkins process in their refinery, which in the bill filed, is claimed an infringement of the patents owned by our company. The bill claims infringement of 17 claims in five patents."

The petition recites that on July 19, 1915, Milon J. Trumble applied for a patent on a process for converting petroleum oils and that the application was given serial No. 40,794. It states that on Oct. 15, 1918, Patent No. 1,281,884 was granted to the Shell Co. of California as assignee of Trumble. In July of this year rights to use the Trumble patents were assigned to the Universal Oil Products Co. it is recited. Other patents owned by Dubbs which Skelly is alleged to be violating are numbered as follows: 1,484,445; 1,517,830; 1,525,281 and 1,534,927.

In choosing the Skelly Oil Co. for a test case the Dubbs interests apparently have challenged a real fighter. Although Skelly is protected by contract with both Cross and Jenkins against patent suits the company expects to conduct its own defense in a vigorous manner.

Vigorous Defense

C. C. Herndon, vice president and general counsel for Skelly, feels very strongly that none of the patents on cracking petroleum are valid basic patents. It is his opinion that, when the smoke of battle has cleared away, the federal courts will have released the refining industry from the payment of tremendous sums in process royalties.

In defending itself against the Dubbs suit it appears that Skelly will not be handicapped by having to protect one process as against another, as in the case brought by Dubbs against the Standard Oil Co. of Indiana. On the contrary it is probable that the Skelly defense will be a counter-attack against the validity of Dubbs patents or any other cracking patents.

Looking into the future Skelly executives see the time when cracking installations will be sold on an engineering and manufacturing basis with a profit to the manufacturer and engineer in charge of construction, but no royalty payments to stretch into the future and levy a tax upon operation.

The first move, of course, will be to demand that the Dubbs interests come out from behind their general smoke screen and explain in what particulars the Skelly Oil Co. is alleged to be violating the patents of the plaintiff. Undoubtedly the legal skirmishing will be of a lengthy character.

Start Gathering Natural Gasoline Statistics

Staff Special

TULSA, Sept. 28.—At the request of the Association of Natural Gasoline Manufacturers the U. S. Bureau of Mines has undertaken the task of gathering monthly figures showing the amount of natural gasoline on hand and being produced throughout the United States. An initial report is now being gathered for July.

In the past statistics on natural gasoline have been available only once each year. The figures have come out long past the period covered and have been of no essential value except for historical purposes.

Lack of accurate current figures has been a handicap to manufacturers and to the industry in general in the past. There has never been any information as to the amount of stock on hand at plants or the volume of production and consumption from month to month.

At times like the present when natural gasoline is difficult to buy refiners are at a loss to know how to plan their operations. When figures have been available for a year or so manufacturers will have a better idea as to the seasonal consumption, logical periods to store and be able to predict future demand with some degree of accuracy.

Refiners will be enabled likewise to plan their purchases and storage of natural gasolines so that they will not be caught short as they are today of such a necessary product in the manufacture of modern motor fuels.

California manufacturers have asked the bureau to gather figures on the amount of gasoline produced monthly by the various processes and to divide shipments into figures showing amount mixed with crude for pipe line transportation, used in blending, shipped as such and lost or used at the plant.

It is expected that early reports will be much later than those issued by the same agency on crude and refined products but every effort will be made to speed up the report so that it can be made public as nearly as possible on a current basis.

The Texas Co. Sues Gulf to Recover McAfee Aluminum Chloride Patent

CLEVELAND, Sept. 26

THE fight between The Texas Co. and the Gulf Refining Co. over ownership of the Gray and McAfee patents on production of gasoline by the use of aluminum chloride has broken out again in the form of two suits field by The Texas Co. against the Gulf. One suit was filed in the United States District Court at Houston and the other in the district court of Harris county, Tex. In the former suit the Gulf Refining Co. is the sole defendant. In the other the Gulf and Almer McDuffie McAfee are joint defendants.

The petition sets forth that Dr. McAfee, in 1912, was employed by The Texas Co. under the direction of G. W. Gray to investigate the possibilities of refining with aluminum chloride. The petition in which McAfee is made a defendant states that:

"While both Gray and McAfee were in the employ of The Texas Co. and while McAfee was conducting experiments, pursuant to instructions and direction given him by Gray, a process for making gasoline from heavier oil was devised, and thus a solution of the particular problem to which McAfee was assigned, was discovered. This process was the property of The Texas Co., and Gray, believing himself to be the true inventor, filed application for patents to cover said process on Jan. 23, 1913, Serial Numbers 743,713 and 743,714, which applications matured into U. S. Patents 1,193,540 and 1,193,541, granted to Gray on Aug. 8, 1916.

"That Gray on or about Oct. 13, 1916, shortly after his patents issued, assigned, as was his duty to do, all his right, title and interest in said patents which had been issued to him to The Texas Co., without additional compensation, and in pursuance of the obligations implied in his general contract of employment by The Texas Co. at the time the invention was made.

Interference Declared

"That McAfee, believing himself to be the true and original inventor, instead of Gray, of said process, did file an application, Serial No. 702,615 on Sept. 30, 1913, which covered the same invention as the aforesaid Gray patents, 1,193,540 and 1,193,541, and interference, No. 41,879, was declared by the United States Patent Office, Oct. 24, 1917, between the McAfee application and the Gray patents. This interference was for the sole purpose of determining which of the two men, Gray or McAfee, was the true and original inventor of the process, and after decision in the patent office, first for Gray, and on appeal for McAfee, Gray appealed to the Court of Appeals of the District of Columbia, which court, on March 6, 1922, affirmed the decision of the commissioner of patents in favor of McAfee, one of the judges dissenting from the majority opinion and writing a separate opinion in favor of Gray.

"That said interference No. 41,879 declared by the United States Patent Office was an administrative inquisition into the sole question of priority of invention as between McAfee and Gray; that no other question than this of priority of invention came up or could legally come up in said interference proceeding.

Priority Only Question

Said interference proceeding was instituted by the patent office and same was a special and limited proceeding confined by United States statute to the consideration of the sole and only question of priority of invention; that the appeal of said interference proceeding to the Court of Appeals of the District of Columbia was provided for by statutes of the United States; and that in said appeal the said court of appeals acted summarily and in an administrative way as an extension of arm of the patent office; that said court of appeals could consider only the question of priority of invention, the said tribunal being by law in this proceeding incompetent to hear or consider any other issue.

"That the invention thus claimed to have been made by McAfee while in the employ of The Texas Co., and the inchoate right to the McAfee patent for the aforesaid gasoline process were vested in The Texas Co. by reason of the aforesaid contract of employment and the agreement implied therein that the results of McAfees' work, included any invention made by him, should belong and become vested in The Texas Co., and The Texas Co. was as a matter of fact in full and complete possession of the rights thus owned by it."

Therefore, claims the petition, the later assignment by McAfee of his patent to the Gulf Refining Co. was void because the invention had been made while McAfee was employed by The Texas Co.

Asks Ownership of Patent

The prayer of the petition is:

"That on final hearing hereof the plaintiff be adjudged the title to and the ownership of said patent No. 1,424,574 with all rights which are incident or which may become incident to a full complete and unqualified ownership of said patent, and that a decree be entered that the defendants are holding the legal title to said patent in trust for The Texas Co.

"That the attempted assignment of the said patent made by McAfee to the Gulf Refining Co. on or about March 24, 1922, be decreed to be void and of no force and effect as against The Texas Co., and if necessary that it be cancelled; and that the defendants, especially the Gulf Refining Co., be ordered and directed to convey and assign in due form to plaintiff, The Texas Co., the entire right, legal title and interest in and to Patent No. 1,424,574 represented or evidenced by letters patent dated Aug. 1, 1922; or that in default thereof said patent be decreed to be the sole property of The Texas Co.

"That the defendants be enjoined pendente lite from conveying the said patent to any person, especially to an innocent purchaser for value without notice.

"That the said defendants may be decreed to pay the costs, charges and disbursements of this suit, and that plaintiff may have such further and other relief at law and in equity to which it may show itself justly entitled."

The petition in the suit filed in Houston prays for a permanent injunction and a preliminary injunction pending decision of the suit restraining the Gulf from making, or selling the invention "described and claimed in claims one to four inclusive of letters patent No. 1,193,540 and in claims one to four inclusive of letters patent No. 1,193,541 and in claims one to 74 inclusive of letters patent No. 1,424,574."

It also asks "For costs of this suit and for account of profits accured to defendant and damages sustained by plaintiff from said infringement."

Notables Attend Funeral Of A. C. Bedford

NEW YORK, Sept. 26.—Funeral services for Alfred C. Bedford, chairman of the Standard Oil Co. of New Jersey, were held on the afternoon of Sept. 2? at the Bedford home at Oyster Bay.

Honorary pall bearers were directors of the New Jersey company: Walter C. Teagle who arrived the night before the funeral on a special train from the Canadian woods where he was spending his vacation; C. G. Black, E. M. Clark, S. B. Hunt, Walter Jennings, George H. Jones, George W. Mayer, J. A. Moffett, E. J. Sadler, and F. H. Bedford.

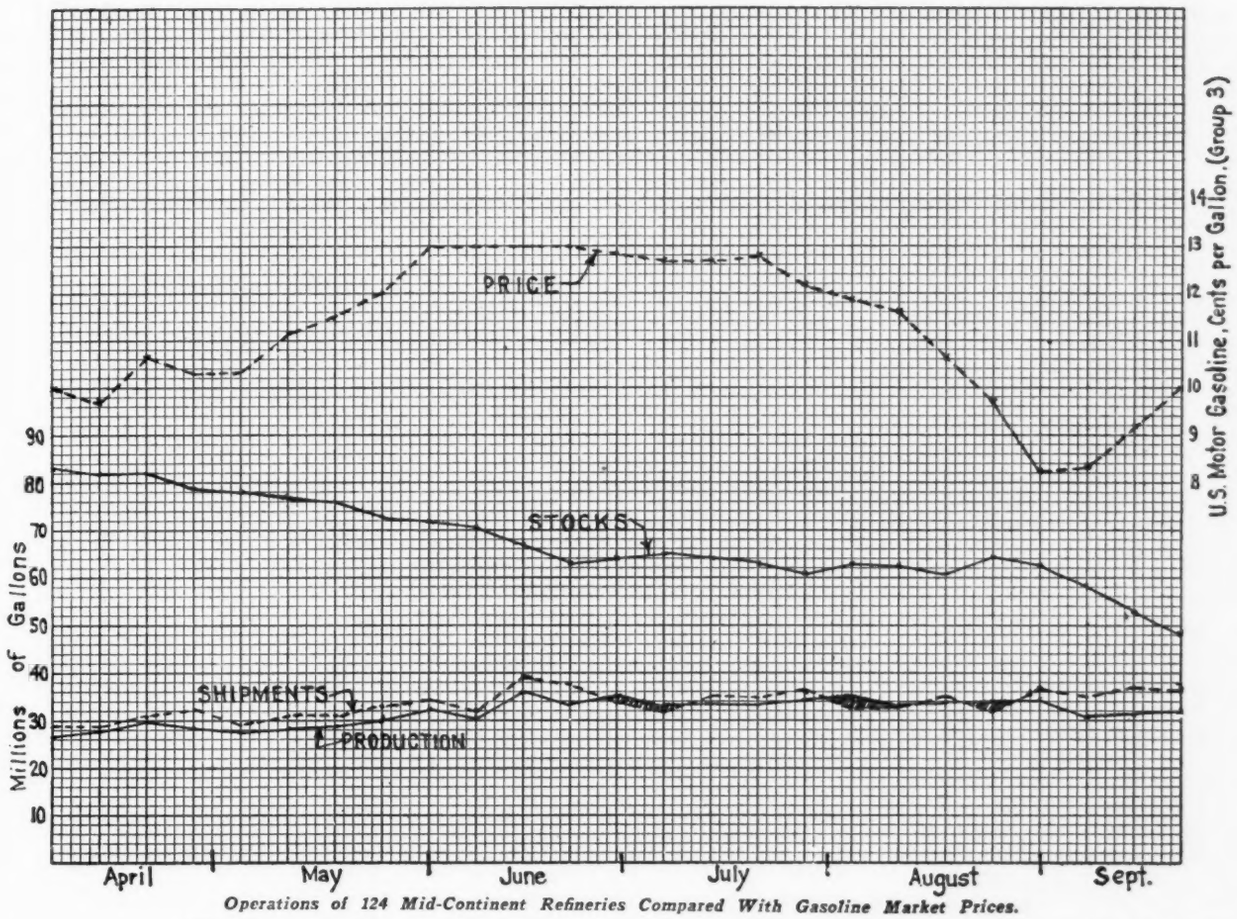
John D. Rockefeller, Jr., Avery D. Andrews and many other industrial and financial leaders attended. Two hundred Standard officials and department heads went from New York in a special train.

Offices of the company throughout the world were closed for 5 minutes at the time of the funeral.

NEW YORK, N. Y.—Transcontinental Oil Co. has sold all its New York equipment, preparatory to its withdrawal from greater New York, and is moving its executive offices to Tulsa. Marathon motor oils will be distributed in New York on unexpired contracts, according to J. O. Corner, division manager at New York City.

Minimum Inventories and Flexible Runs Policy of Mid-Continent Refineries

By J. C. Chatfield
N. P. N. STAFF WRITER



Operations of 124 Mid-Continent Refineries Compared With Gasoline Market Prices.

TULSA, Sept. 28

DURING the six months of the 1925 gasoline season Mid-Continent refiners have reduced their stocks of gasoline 41.5 per cent according to reports submitted to National Petroleum News by 124 plants in the field which have a still capacity of 567,600 barrels. At the beginning of April the group of plants held in their tanks 83,341,598 gallons, while the report for Sept. 18 shows stocks down to 48,736,659 gallons.

With the exception of three periods of rather short duration during the six months, stocks have been drawn on slowly and steadily. Production has been kept just a little below the level of shipments except for the three periods mentioned when, in each case, demand lagged sharply.

It is interesting to note that every break in the price of U. S. Motor gasoline in Group 3 has been accompanied by an increase in gasoline stocks at the 124 plants which furnish this publication with information regarding their operations.

In the accompanying chart the weekly figures on gasoline production, shipments and stocks have been plotted with the price of U. S. Motor gasoline to show the relationship between price and the level of reserves during the consuming season. The top line shows the gasoline price in cents per gallon in Group 3. The second line represents the level of stocks. The two bottom lines represent shipments and production from week to week. At the three periods where production has been in excess of shipments the intervening space between the lines has been shaded.

Mid-Continent refiners began drawing on their stocks of gasoline earlier this year than usual. The first report compiled in April showed a reduction in stocks of a million gallons. In the four previous weeks from March 6 to April 3 the group of refiners reporting had increased their stocks of gasoline 10,824,229 gallons. The steady increase in stocks during March had been accompanied by a falling gasoline market. On March 2, U. S. Motor gasoline was selling at 12½ cents per gallon while during the first week in April the price had dropped to 10 cents per gallon.

There was an immediate reaction in price to the heavy demand in April. Prices advanced during the month to 10¼ to 10½ cents per gallon. Stocks on May 1 had declined 5,283,904 gallons from the April 3 level. There was likewise a substantial decline in gasoline stocks in terms of days supply. On April 3 the 124 reporting plants held 21 days' supply and on May 1 only 19 days' supply.

Shipments continued to gain in volume throughout May, and reached a peak the second week in June. Prices of U. S. Motor gasoline were rising steadily as sales gained in volume. The peak price of the year of 13 cents per gallon was reached a week prior to the period of heaviest shipments of the year.

The first price break in the heavy consuming season came during the last week in June, when shipments declined 9 per cent to 34,968,123 gallons and production was held at 35,312,347 gallons, causing an increase in stocks of a little less than a half million gallons. The price continued to fall during the first week in July, when shipments fell an additional 8 per cent to 32,086,068 gallons and production was 33,134,641 gallons. During the following three weeks

shipments were better and runs were not increased, with the result that stocks were again drawn on and gasoline prices were held.

The last week in July and the first week of August saw another increase in gasoline stocks and a very sharp break in gasoline prices. For the entire month of August gasoline prices continued falling, but on Sept. 1 refiners cut their runs to stills 25,000 barrels per day and began drawing heavily on stocks with the result that gasoline prices have recovered a great deal of their lost ground in spite of lower crude prices and the competition of California gasoline.

An analysis of the accompanying chart shows that refiners in the Mid-Continent field have operated on an extremely sane basis throughout the present gasoline season. For a greater part of the time they have kept production of gasoline below shipments and have operated with very small stocks in their tanks.

It will be observed by comparing the curve representing shipments with the curve representing production that refinery runs have been flexible. They have been cut in every instance when shipments declined or shortly thereafter. In no case have stocks been increased more than two weeks in succession, refiners having reduced their output to meet the situation.

Demand for gasoline from the Mid-Continent field has been far in excess of normal during a major portion of the year thus far. Refiners in the field have shown their ability to meet the situation fully without any shortage having developed at the peak of demand, despite the fact that inventories have been kept well below the level of previous years. A comparison of this year with previous gasoline seasons would indicate that the policy of minimum inventories and quick adjustment of production to demand is entirely feasible in the refining industry. There is apparently plenty of capacity to meet virtually any demand which might arise at any point in the season so that it is not necessary for refiners to build up heavy reserve stocks in the winter to act as a threat to the market.

California gasoline competition undoubtedly caused a great deal of the slump in gasoline shipments from the Mid-Continent during July and August and was one important factor in breaking down the price. It appears however that a little closer regulation of production in July and August to meet the situation as it developed would have kept gasoline from dropping below 10 cents per gallon.

The comparison of gasoline price trends with manufacturing and demand figures compiled by this publication shows very clearly that the weekly reports of the 124 plants are an accurate gauge of conditions in the Mid-Continent. A recent comparison of National Petroleum News reports with those of the U. S. Bureau of Mines made in the weekly bulletin of the Western Petroleum Refiners Association showed that the weekly reports from February through July covered 59.63 per cent of the total as gathered by the government agency.

Gasoline Stocks Decline During August

NEW YORK, Sept. 29.—Preliminary figures on operations in the oil industry for August, just issued by the American Petroleum Institute, which are a fair index as to what the complete figures will show, indicate a further addition to total stocks of crude oil and refined products which the industry is carrying.

These figures for August show a net increase in refinery stocks of 1,363,000 barrels, or 57,246,000 gallons for the month, covering about 65 per cent of the operating refinery capacity of the country. Refinery stocks during July increased 2,248,000 barrels, or 94,416,000 gallons, the same source reported.

In August, gasoline stocks declined 283,000 barrels, or 11,886,000 gallons; kerosene decreased 436,000 barrels, or 18,312,000 gallons, while gas and fuel oil stocks increased 2,105,000 barrels, or 88,410,000 gallons. The institute preliminary report for July showed a decrease in gasoline stocks of 1,170,000 barrels, or 49,140,000 gallons, while the official and complete figures of the Mines Bureau for July including all plants showed a draft on gasoline stocks of 84,000,000 gallons.

For crude oil stocks, the territory east of the Rocky Mountains only is given. The lack of figures on California makes the institute report on this phase of operations not a true index to what the complete figures may show. For August the institute reports an increase in crude stocks east of the Rockies of 890,000 barrels, while July showed an increase in crude and heavy oil stocks in California which will likely continue for August.

The summary of the increases and decreases of stock at refineries during August is:

Barrels of 42 gallons	Increase	Decrease
Domestic crude oil ..	.....	429,000
Foreign crude oil ..	323,000	.....
Oil for re-running .	.....	132,000
Gasoline	.....	283,000
Kerosene	.....	436,000
Gas and fuel oil	2,105,000	.....
Lubricating oil	.....	142,000
Miscellaneous oils ..	357,000	.....
Total	2,785,000	1,422,000
Deduct	1,442,000	
Net increase	1,363,000	

* * *

LOS ANGELES, Sept. 29.—California storage stocks increased 3,116,359 barrels in August to a total of 143,031,939 barrels, according to the figures of the American Petroleum Institute. This includes crude and refined oils in storage at Pacific Coast Points.

N.P.M.A. Adds Economist To Its Staff

CHICAGO, Sept. 25.—That members of the National Petroleum Marketers' Association and Independent jobbers in general may have the advantages of expert economic advice, the association has recently employed an economist. His name is S. H. Nerlove and he has already reported for duty at N.P.M.A. offices. The directors of the N.P.M.A. have had a department of economic research under consideration for quite a while. For some months they have been at a loss where to get the right man. The only disadvantage is that Mr. Nerlove is obtainable only part time for the present, at least. He is a resident of Chicago and has dedicated certain time apart from his own affairs.

"The object of the department," Mr. Nicholas says, "is to gather and analyze statistical data about factors influencing the production and consumption of oil." Here are the seven things Mr. Nerlove will be asked to study and make reports upon:

1. A detailed investigation of the supply of oil and oil products, with special emphasis on the economic effects arising out of the existence of a more or less temporary source of supply.

2. A comprehensive study of the economic nature and characteristics of the demand for petroleum and its products.

3. Marketing conditions prevailing in the oil industry, including a study of the nature and characteristics of the spot market.

4. The economic significance of the oil jobber in the petroleum industry.

5. Competition in the oil industry, with special emphasis on the competition between integrated and non-integrated oil organizations.

6. A detailed study of the prices of oil and oil products and of price structures in the petroleum industry.

7. Costs in the oil industry, both production costs and marketing costs.

In addition to these general studies Mr. Nerlove will also be available to help association members in their individual problems.

Transcontinental Offices Nearly Moved

TULSA, Sept. 26.—The Transcontinental Oil Co. has virtually completed moving its personnel from its former general offices at Pittsburgh to Tulsa. Two or three of the executives have remained behind to clean up odds and ends but will be in Tulsa within the next week or so.

On Dec. 1 the Transcontinental will have quarters in the Gillette building which is now under construction at 4th and Boulder Sts. At present its offices are in the Wright building but some temporary offices have been taken in other buildings in the vicinity.

Ohio Marketers Differ Over Meeting Discount Contracts

By Roger B. Stafford
N. P. N. Staff Writer

YOUNGSTOWN, O., Sept. 26

INDEPENDENT marketers in Ohio are divided in opinion as to whether they should follow the lead of the Pure Oil Co. in this state and issue discount contracts to dealers and consumers of large quantities of motor fuels, oils, greases and soaps.

This difference of opinion was brought out at the second session of the two-day fall convention of the Ohio Petroleum Marketers' Association in the Ohio hotel, Youngstown, Sept. 24 and 25. The Pure Oil contract was discussed but after hearing comment against it and other comment that could not be regarded as opposing the contract, but not wholeheartedly for it, the jobbers dropped the subject without taking action.

Freight rates, filling and bulk station construction, a state constabulary, Independent Oil Men of America advertising, and the Wisconsin marketing regulations requiring posting of gasoline prices, together with all special concessions, also were discussed.

Western Ohio jobbers have been protesting since last May about the rates charged on gasoline from Group 3 into Ohio. The trouble started with a reduction in rates to Chicago and in the state of Indiana. The western Ohio oil men say that gasoline may be shipped so close to the Ohio-Indiana boundary that it can be moved into western Ohio consuming centers by tank truck to undersell gasoline shipped from the Mid-Continent direct to Ohio points.

The freight rate case was brought up first at the spring convention of the Ohio association in Cincinnati in May. The situation became aggravated over the summer and at the first day of the fall meeting, a committee was appointed to consider the question. The committee, which was comprised of J. L. Marsh, Vahey Oil Co., Youngstown; B. F. Welty, Radiant Oil Co., Lima; W. H. Bell, Gerkins Oil Co., Dayton, and W. C. Hughes, field secretary of the Ohio association, recommended that a traffic committee should be appointed and authorized to expend $1,500 in gathering data, hiring a traffic consultant and to defray other expenses incurred in determining whether the Interstate Commerce Commission should be appealed to for lower rates into Ohio. W. F. Burke, Kentucky Independent Oil Co., Cincinnati, and vice-president of the association, who presided, appointed as this committee the same men who made the preliminary consideration of the freight rate question.

The association decided that individual members should support or oppose a movement afoot in Ohio to have established a state constabulary as they saw fit. In past efforts for a state police system, considerable hatred has been aroused between supporters and opponents of the plan.

What the Independent Oil Men of America is doing in national advertising was told by Mr. Hunt in charge of the campaign. This topic has been covered in previous news stories in this magazine.

R. A. Overholzer, field secretary, Wisconsin Independent Oil Jobbers' Association, explained the posting of prices of gasoline at bulk and service stations in his state as required since last May. Oil men were complying readily with the Wisconsin law, he said; but there was some trouble with garage men and curb pump dealers who were not always posting the minimum at which they sold gasoline. It was difficult to prosecute the offenders, he said, because it would be necessary to get the testimony of the favored buyer which was seldom possible.

There are two theories backing the Wisconsin regulation, he said. One was economic and the other political.

Under the economic theory, knowledge and publication of all prices protects the fair competitor and the consumer, Mr. Overholzer said. The Wisconsin market bureau which is charged with administration of the law, he said, believes that too wide a spread between wholesale and retail prices creates conditions from which the oil industry is trying to escape. Some Independent jobbers feel they are not free to bring about price adjustments, he said, but the Wisconsin bureau says the fear is without foundation. It has been intimated that the state might step in if an Independent oil man or company were intimidated but as no such case had ever risen, it was impossible to foretell what the state might do, he said.

Under the political theory back of the law he said there was the old question as to whether all business should be left alone, free from untrammeled competition. He said he doesn't believe there is anything like absolutely free competition any more. Modern business men, he declared, are thinking and acting collectively more and more.

The role of the state in business is becoming more indisputable, he said the Wisconsin proponents of the law contend, and the state has the interests of the consumer to protect. Industries were organizing and labor was organizing, he said the proponents argued, but it was impossible for the consumers to organize.

He said the political arguments appeared sounder and clearer than those advanced under the economic theory. He said the Wisconsin jobbers were watching the operation of the law carefully but feared an extension of paternalism from South Dakota into Wisconsin more than the price posting law.

Wisconsin jobbers are also bothered with gasoline bootlegging. Bootlegging is here used not as a name for price cutting but for the illegal sale, or rather beating the state out of the tax. The bootlegging is occurring along the Illinois border. Illinois has no tax and motorists living near the border drive into Illinois to get their tanks filled. Mr. Overholzer said he had checked one station in the presence of state officials but that nothing had been done. He said he believed state officials feared that, were they to try to prosecute the consumer for bootlegging of gasoline, the whole gallonage tax measure might be lost in the courts. He said the Wisconsin association was going to force the state officials to act and was gathering evidence for that purpose.

Concerning the discount contracts of the Standard Oil Co. of Indiana, he said there was some doubt as to the legality of those instruments under the price posting act. As the lowest price at which sales are made have to be posted when made, question is raised in the Standard contract case because the actual price at which a sale is made cannot be determined until the end of the month when the size of the rebate is made known after a customer's purchases for the month have been totaled.

ANNUAL meeting of the Ohio jobbers will be held in the Columbus Athletic Club, Columbus, in February, 1926. George J. Karb, Central Ohio Oil Co. who has been president of the Ohio association since its birth three and a half years ago, has announced his intention to retire from the office. Unless Mr. Karb can be induced to change his mind, J. L. Marsh of the Vahey Oil Co., who has been one of the most active members, will be put up as a candidate by several of the present officers. He was given a big boost at the closing session of the fall meeting Sept. 25 by W. F. Burke.

Ohio Jobbers Get Pointers on Station Construction

Staff Special
YOUNGSTOWN, O., Sept. 26

BEST practices in the construction of bulk and service stations were outlined to the Ohio Petroleum Marketers' Association by N. A. Carlson, chief engineer, Erie Service Station Equipment Co., Erie, Pa. Mr. Carlson for 12 years was construction engineer for the Atlantic Refining Co. in the Pittsburgh marketing division.

Mr. Carlson divided his talk into two parts. One part was on bulk storage plants and the second part on service stations. Advice on fire prevention methods was given when discussing various equipment or construction.

Whenever possible, Mr. Carlson urged the marketers to build their bulk plants outside of municipalities. Then they would not be subject to regulations, oftentimes nonsensical, that might be imposed by uninformed village and city officials and councils.

He said it was essential that the equipment in the way of valves on storage tanks should be adequate. Tanks should have safety vent valves and internal check or emergency valves. The former are used to allow vapors to escape thus keeping down the pressure inside the tanks and permitting the tanks to breathe. The emergency valves would prevent waste of stock and probably a serious fire if a valve should be broken off.

Best Type of Motors

The type of motor at the bulk plant was important he said, and recommended a two-or three-phase, or totally enclosed motor. These prevent sparking and therefore are a great deal safer for use around inflammable liquids or vapors. Switches, he advised, should be outside of buildings rather than inside.

Static electricity, he said, occurred principally when truck tanks were being filled from large storage tanks. The main preventive, he said, was in establishing a positive metallic contact between the pipe line and the tank truck. In case hose is used, he said it should be seen that the hose has a metallic contact from one coupling to another. The same precaution should be used in unloading from a truck tank to an underground tank at the service station. Practically all hose made now has such metallic contacts, he said.

Storage tanks, Mr. Carlson said, should not be placed along property lines and close to main railroad tracks. There precautions are for the safeguarding of adjoining property and in the case of the railroads as a precaution against escaped vapors being ignited by passing locomotives. Most states and the railroads specify the distances from gasoline tanks to the nearest main line or through tracks.

The rivet-weld tank is being generally adopted for storage purposes, he said, and practically all the large companies are installing that type of construction at their new bulk depots. Mr. Carlson recommended the use of a frost proof drain valve for the drawing of water from the bottom of storage tanks.

All electrical wiring should be in conduits and all fittings should be vapor tight to prevent gasoline vapors being ignited by some vagrant spark.

Mr. Carlson urged adequate storage at jobbing plants, especially for lubricating oils, which, he said, should be bought in tank car lots.

Every plant should also be equipped with a reasonable amount of fire extinguishers. The foam type was best for oil fires, he said.

Filling station sites should have 85 to 90-foot frontages in order to make them easily accessible, he said leading oil companies had found. The corner lot was a favorite site and oil companies have not hesitated in paying high prices for these desired locations.

Keep Drives Clear

The drive way is really the station's salesroom and should be to the front. The building should be back where it would not interfere with the movement of customers' automobiles. Drives should not be less than 25 feet wide and he recommended that gasoline dispensers should be placed at the sides of the drives rather than on islands which, he said, interfered with the maneuvering of automobiles.

"Keep the middle of your drives open, like you keep the middle of your streets open," he said.

Whether the station should have a canopy caused considerable discussion. Most of the Ohio marketers present seemed to favor the canopies. Mr Carlson said that canopies should be high enough to permit the passage of trucks under them and that the supporting columns should be far enough from the station building as not to interfere with traffic under the tops.

Recommends Concrete Drives

Driveways should be of concrete, he said, and should slope ¼ inch to the foot. Lights should be on standards and lamps of a type to throw the light to the ground instead of into space. Auxiliary service should be kept far enough from the station so the gasoline and oil customers would not be hampered. Inlet pipes to the underground tanks should be so placed that tank trucks would not interfere with business traffic. Adequate storage was urged. He said the average of storage facilities at large company stations in Pennsylvania was 4000 gallons where two grades of gasoline was handled.

Crankcase draining pits are being placed under cover and pits are replacing racks. He said he favored storing motor oils in basements of stations where basements may be built. By so doing the ground level floor could be kept neater and goods could be displayed better.

In picking gasoline handling equipment, Mr. Carlson said the chief factors were speed, appearance, and the number of outlets that could be installed at each tank.

As to rest rooms, stations in commercial districts need only one, but two were better if the station were in a residential district or on a touring route.

"Get an architect when you plan a new station, and get something distinctive," he urged. "A good looking station is a good advertisement and it's hard for an inexperienced person to make a good design."

* * *

Dr. O. L. Reid, superintendent of the Youngstown schools and president of the Chamber of Commerce, was the chief speaker at the dinner Thursday evening. He told of the growth of the iron and steel industry in the Mahoning Valley besides welcoming the oil men to the city.

Charles A. Leedy, columnist of the Youngstown Telegram, and former president of the Association of American Press Humorists, supplied the motive for a series of laughs.

Other entertainment supplied by the Youngstown oil men's committee of which J. L. Marsh was chairman, consisted of an accordion player, and a Scotch monologist and singer.

William M. Peck, Deepwater Oil Refineries, Houston, Texas, played several pieces on the piano.

* * *

The concluding entertainment feature of the meeting was a tour of the city's industrial district and Mill Creek park Friday afternoon under the auspices of the Vahey Oil Co.

* * *

J. L. Marsh was presented with a 23-jewel Woolworth watch with a 20-minute guarantee drop hammer engraved case. The presentation was made by W. F. Burke in a burst of oratory possible only in a Kentuckian doing business in Cincinnati. However, the box containing the rare hand turned movement was all that could be desired—purple plush, gold ribbon and everything.

* * *

At the luncheon Friday noon, music was supplied by a Gypsy orchestra which could play with equal pleasantness anything from Irving Berlin to Franz Liszt. Victor Herbert's "Gypsy Love Song" and Liszt's "Hungarian Dance No. 5" seemed to be the favorites among the jobbers. The concert was the compliment of Caldwell & Taylor, Cincinnati, Caspar distributors for southwestern Ohio.

Improvements in Tank Car Dome Planned To Reduce Natural Gasoline Losses

By J. C. Chatfield
N. P. N. Staff Writer

TULSA, Sept. 28

A NEW device calculated to minimize loading, unloading and transportation losses of natural gasoline will be exhibited at the International Petroleum Exposition beginning Oct. 1, as a part of the exhibit of the North American Car Co. The device has been developed by Emby Kaye, general superintendent of the natural gasoline division of the Skelly Oil Co.

The tank car improvements developed by Mr. Kaye consist of a new type of positive reseating relief valves, an ingenious method of gauging without removing dome cover and a method of overhead unloading without releasing pressure on the car or removing the dome cover.

Just east of the Scientific and Technical building on the Exposition grounds the North American Car Co. will spot its car for exhibit. The car will have a head removed and steps prepared so that visitors may enter its interior. A set of steam coils in the car will be sectionized so that the visitor may observe their operation. The Kaye improvements will be in place in the dome and on the dome cover. The car itself will be painted with aluminum paint, according to the plans of Godfrey M. Brigham, superintendent of the West Tulsa plant of the North American.

Unceasing study has been given methods of manufacturing natural gasoline during the past ten to 15 years while the industry has been developing at such a tremendous rate. The technologists of the industry have developed processes by means of which they can operate profitably on lean gas and save a tremendous quantity of valuable gasoline which formerly was wasted. They have improved their fractionation equipment as radically as have the refiners of crude petroleum. But during this entire time there has been very little improvement made in equipment for the loading, transportation and unloading of the product.

Transportation Losses

The insulated car has done much to permit the transportation of highly volatile products safely but tank car safety valves have permitted great losses and loading and unloading equipment and methods have undergone very little change. It is estimated by one authority that natural gasoline losses in 1924 from all causes were aproximately 80,000,000 gallons.

Loading losses on natural gasoline run from 150 to as high as 2000 gallons per car under present methods of operation. The highest losses occur where plants are a considerable distance from their loading racks and a highly volatile product is being marketed.

Fig. 1. New Kaye dome cover for natural gasoline tank cars.

Transportation and unloading losses run as high as 3 per cent, it is estimated, and there is a further loss of some importance at the refinery, particularly where blending is done by careless methods. The losses occurring during transportation are largely attributable to leaky safety valves which vent at a pressure of less than 25 pounds.

The tank car improvements perfected by Mr. Kaye are designed to diminish losses incident to loading, transportation and unloading. They have been developed with the fact in mind that natural gasoline is manufactured by liquifying gasoline vapors extracted from natural gas, and that either low temperatures or pressure is required to hold all of the product in a liquid state until it can be absorbed permanently into a more stable product.

Present practice is to vent all vapors from a car of natural gasoline before unloading it. Occasionally the venting is done before the car is gauged so that any liquid which vaporizes and escapes with the vapor in the car will not be a loss to the purchaser. Pressure which has been held on the car during transportation is released when the car is vented and the boiling point of the gasoline lowered as a consequence.

The system evolved by Mr. Kaye contemplates the keeping of pressure on the natural gasoline at all times during the process of loading, transportation and unloading. To enable the purchaser of a car of natural gasoline to gauge the car on receipt without releasing pressure an aluminum or white painted step rule is fastened in the dome. Each step on the rule is marked with plain black figures in inches from zero which represents shell capacity of the car. The liquid level in the dome or outage in inches below zero is read on the step rule by means of two peep holes in the dome cover. To one of these peep holes a flashlight is to be applied while the inspector of the car will look through the other. With the aid of the flashlight the interior of the dome is completely visible.

Having gauged the car on receipt the refiner may attach his unloading line to the unloading pipe provided in class IV cars and pump air or gas through the vent pipe to force the gasoline into his storage or blending tanks. The vapors above the gasoline also may be removed and recompressed or utilized as fuel.

By this method the refiner sustains no loss during unloading after gauging. By unloading through the bottom outlet valve the refiner sustains an evaporation loss through the open dome as the level in the car goes down and a larger surface area of gasoline is exposed.

By an ingenious arrangement the car may be sampled at destination without releasing pressure if the refiner insists

on making complete tests of the car before unloading. The sampling arrangement will consist of an inverted U tube fitted with a pet-cock and connected to the overhead unloading line by a bushing. The sample may be taken from the line by the aid of pressure existing in the car.

Detail of Plan

The accompanying photograph, Fig. 1, is a view of the dome of Skelly Oil Co.'s insulated car No. 2022 which has been equipped with the Kaye improvements. In the foreground are two three inch relief valves which are modifications of the Kunkel valve. These valves are designed to reseat accurately when excess pressure is relieved. The present standard type of valve ordinarily remains open or partially open until nearly all pressure has been removed, causing unnecessary loss. The improved valve is sealed against tampering.

Between the relief valves in the foreground just ahead of the pressure gauge is the unloading line sealed with an ordinary tank car seal. The other line also sealed, through which gas or air is pumped to unload the car is beyond the bolted dome cover. At each side of the pressure gauge may be seen the peep holes surmounted by brass caps.

With the aid of these peep holes the car may be loaded as well as unloaded under pressure. Loading may proceed until the car is nearly full when the loading rack man will read the interior step rule gauge and proceed with loading until the liquid level stands at zero. After loading has ceased and the contents of the car settled down the level may be read a second time and the car further filled, if necessary.

Fig. 2, is a cross section of the dome with improvements. It shows the method of attaching the step rule gauge and the peep holes and unloading line and air line.

Experiments conducted under the direction of Mr. Kaye indicate that when natural gasoline is loaded under a pressure of 20 pounds per square inch, from half to three fourths of the normal loading loss is avoided. He believes that loading up to 25 pounds pressure would cut losses even further.

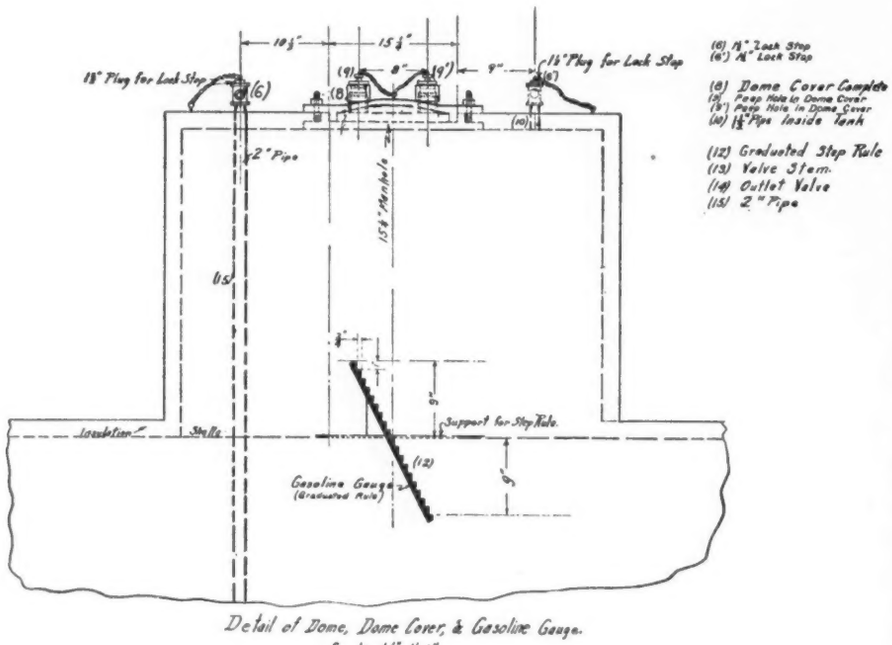
Application was made to the Bureau of Explosives and the American Railway Association last July for approval of the Kaye improvements. It is expected that approval will be granted shortly for equipping a limited number of cars for test purposes at least.

Transcontinental Buys Stations

Staff Special

TULSA, Sept. 26.—Transcontinental Oil Co. has purchased distributing properties of the Bristow Gasoline Supply Co. in Lincoln and Creek counties. The system consists of 10 filling stations and six bulk stations well scattered through the two counties. Transcontinental has a 5000-barrel refinery at Bristow. In the past it has had only a few stations in Oklahoma, all of which were at Muskogee.

TROY, N. Y.—The Bang Service Stations, Inc., with headquarters at Mt. Vernon, N. Y., have acquired the equipment in greater New York of the Transcontinental Oil Co., which is moving its executive offices from New Work to Tulsa. The Bang company has also taken over the Transcontinental salesmen in this territory.



Detail of Dome, Dome Cover, & Gasoline Gauge.
Scale 1½"-1'-0"

Fig. 2 *Cross section of Kaye dome cover.*

Oil Drilling Engine Is Now in Use

CLEVELAND, Sept. 28.—In several fields of the east producers and contractors are now using the new oil engine for drilling made by the Franklin Valveless Engine Co. An order for 19 of these engines, in two sizes, is now being completed by the company for Europe.

The company announces that it has succeeded in developing to a highly successful stage a single cylinder oil and gas engine with a minimum number of parts, fewer adjustments and no previous technical experience required to operate. A drilling control has been perfected which gives correct drilling motion.

The engines are built in two types. One is an oil engine and the other uses natural gas. Either is convertible to the other type but each is primarily designed for its own type of fuel.

The oil engine, which is a radical departure in prime movers for drilling, operates on crude oil or any of its distillates that is fluid enough to flow freely at the temperature of the room in which the engine is operating. The oil must not, of course, contain sand, dirt, acid, water or sulphur in sufficient quantity to hamper the effective operation of the engine. The company recommends fuel distillates or gas oil from 28 Be. up to kerosene as being the best fuel, as well as being as cheap as crude oil.

Engineers Plan Smoker

TULSA, Sept. 26.—Among the many entertainments planned for the period covered by the International Petroleum Exposition is the smoker to be given by the Mid-Continent section, American Institute of Mining and Metallurgical Engineers, in the junior ball-room, Hotel Mayo. This affair will take place Thursday night, Oct. 8, the guests assembling at eight o'clock. After two or three speakers have been heard, and, it is hoped, general discussion indulged in, a buffet lunch will be served.

L. E. Phillips, vice president and general manager Phillips Petroleum Co., will give the engineers the executive's viewpoint as to how the engineer can be of the most value to the oil industry and in what way he should be trained. He will be followed by H. C. George, director of the school of petroleum engineering, University of Oklahoma who will tell what his school is doing along the lines of turning out efficient petroleum engineers.

A production superintendent will give the practical man's side of the question and he will be followed by an engineer who will tell what he thinks the engineer has a right to expect from the executive and other departments.

The meeting will be informal, with a true smoker atmosphere prevailing, and it is hoped that all visiting engineers and geologists will take advantage of the opportunity to foregather with the Tulsa technical men.

A Panorama of Skill

BECAUSE an oil derrick is a rugged structure of planks and beams and the tools and equipment that are used around it are handled by pulleys and tongs, and rated in weight in tons instead of pounds, it is hard to grasp the fact that a marvelous technique has been developed by the producing industry in tapping underground resources and bringing the oil to the surface, a technique as sensitive to control as that in use in skilled industry anywhere.

Likewise it is hard to comprehend the research and toil and skill that the manufacturers of oil field equipment have expended the past fifty years in helping the industry itself better its methods of producing oil and handling and storing it.

Study of the equipment and apparatus displayed at the Tulsa Petroleum Exposition brings the story home—the great number and variety of tools and materials used, the progress that is being made in improving them and designing new equipment, the great study and research work that goes on continually, although little is heard of it, to provide better mechanical help to aid man's ingenuity in bringing oil from the ground.

The following pages of this issue of National Petroleum News have been given over to articles describing some phases of the improvement in production equipment and oil field mechanics. Reading them will help to impress upon the visitor to the Tulsa exposition, whatever his connection with the industry may be, the great part that has been played in this improvement in production methods by the manufacturers of the equipment themselves.

But it is hard to present the picture at any exhibit or display because actual field conditions cannot be reproduced. Looking at a drilling bit on the display room floor, or wondering at the great variety of fishing tools, each designed for some special underground emergency, is one thing. Trying to comprehend how that same equipment can be deftly operated when down some thousands of feet in the ground is another.

Visualize for yourself a hole a foot in diameter running down three-quarters of a mile towards the center of the earth, with a crew on the derrick floor sufficiently skilled and provided with equipment so designed that they can tell almost to the inch the depth at which their hole has been driven; what kind of formation they are drilling in. Encountering water they can shut it off, without damage to the well. Their only connection with the point at which they are working a cable little thicker than a man's thumb, this same crew can locate and recover a tool or piece of equipment lost in the hole, with almost the skill of magic.

The art of drilling—and it is an art—has by no means reached perfection. Not a week passes that does not see the introduction of some device which simplifies the work and speeds the development of oil and gas fields to keep pace with the world's insistent demands for oil. The same is true of methods and machinery for operating the oil field after the wells have been drilled.

Regardless, though, of the fact that oil men and manufacturers will yet go far in inventing new equipment—some of it of such character as to revolutionize certain present day methods—there is at hand today everything that is required to do an efficient job of maintaining a supply of oil equal to every essential need. The last word in equipment has not been spoken, but considering the less than 60 years the oil industry has functioned, the advance in mechanics has been swift.

Petroleum Exposition Holds Much Of Value for Every Oil Man

By W. G. Skelly

President, Skelly Oil Co.,

President, International Petroleum Exposition and Congress

W. G. Skelly
President, Skelly Oil Co.

ON THE eve of the opening of the third annual International Petroleum Exposition and Congress, I am asked by National Petroleum News to tell its readers in all branches of the oil industry something of the value of the Exposition to men engaged in any of the varied activities of the business. I am glad to do this, for I believe that the Exposition presents a very great educational opportunity for every oil man, be he the humblest worker or the highest executive, and whether his work takes him into the producing, refining, or marketing division of the industry.

The success of any industry depends upon progress and expansion—progress in the art of producing and manufacturing, and expansion in finding and making markets, and this is especially true of the oil industry, for without the scientific progress that has been made in recent years in discovering new oil deposits and in increasing the yield of all-important gasoline from a barrel of crude oil, the oil industry would have fallen far short of the demands that have been made upon it.

Progress also is being made in recovering a larger proportion of the oil content of the producing sand.

Productive life of oil wells is being extended by scientific methods, while increasing care of details and good engineering management is steadily cutting down lifting costs on well-operated properties.

The oil industry's marketing service is one of the wonders of the world, extending as it does to every corner of the land, and making gasoline available in every remote locality.

All this is the result of progress, and this progress is continuing and will continue as long as the oil industry exists.

One has only to attend the International Petroleum Exposition to be brought to a realization of the progress that has been made by the oil industry since that early day when Colonel Drake immortalized himself and ushered in a new era in the world's history by drilling in the first commercial oil well. No greater contrast can be imagined than that existing between the Drake well and tools of 1859 and the massive equipment used to drill the deep wells of today, while the intervening 66 years have seen the other branches of the industry develop by giant strides from the early shipment of crude oil on barges along Oil Creek, to be marketed as "Rock Oil" for medicinal purposes, to present-day transcontinental pipe lines and huge refineries, many of which have daily refining capacity far greater than the early pioneers dreamed would ever be produced.

A visit to the Exposition is a liberal education to any oil man, no matter what his station in life, and he cannot help but derive benefit from a thoughtful study of the exhibits. If he is one of the old-timers who has believed that he knew just about all there was to know about the oil business, he will find things at the Exposition that he never knew existed, and with the use of which he is unfamiliar. Learning of them and their uses will make him a better oil man. For the young man who has been in the oil industry a comparatively short time, and who is interested in its ramifications, the Exposition is a literal storehouse of knowledge and education. I repeat that there will be found something at the Exposition that will interest and instruct any man engaged in any branch of the oil industry.

To follow the path of petroleum from the time that its hiding place is discovered by the drill after its location has been suggested by geologists, on through its various stages of production, storage, transportation, manufacture, distribution and sale, is a privilege that has been accorded to but a few men who have worked up to the highest positions in the industry. The average oil worker, even though he may be an executive, is a specialist whose work has always been connected with certain divisions of the industry, leaving him scant opportunity to familiarize himself with the other branches. Such a trip may be made, however, without going outside the Exposition grounds, following the trail from beginning to end.

Starting with the geological surveys and maps, the Exposition visitor may familiarize himself with the methods used by scientific men in locating those places favorable for the accumulation of petroleum and with the latest technical appliances for finding the hidden structure. He will see the derricks and tools used in drilling the well after the location has been decided upon, and will be able to watch every detail of this work, both in rotary and cable-tool drilling, on wells actually drilling in the grounds. Appliances for control-

ling the flow of wells will be shown as will the latest developments in gas-tight tankage to store the oil when the well has started producing. Well-pumping equipment and improvements in production methods can be studied in detail. The visitor can acquaint himself with the machinery and methods used in manufacturing gasoline from natural gas. He can see the latest designs of pumps and compressors used in transporting oil and gas from the field to refineries and consumers. He can follow the crude oil through its various stages of manufacture, and in its final form, he can study the most modern appliances for dispensing gasoline into the automobile tank. The major divisions of the industry are here merely touched upon, as there are innumerable ramifications of each in the exhibits, all worthy of thought and study.

I believe it is the duty of every oil man who possibly can do so to attend the Exposition, and I believe also that it is the duty of every executive to see that the largest possible number of his company's employes are given opportunity to attend it. It will make the ambitious employe better fitted to advance, and, by increasing his knowledge of the business in which he is engaged, will make him that much more valuable to the employer.

The Petroleum Congress

In addition to the Exposition itself, the International Petroleum Congress will have a three-day session, held this year in the newly-completed Mayo Hotel, and conducted in such a manner that it will not interfere in any way with attendance at the Exposition. At the Congress, talks on timely subjects will be made by nationally known oil men, while foreign delegates to the Congress will tell of petroleum progress in their countries. These sessions will hold much of interest to all oil men, and should be well attended by them.

By the nature of his work, the oil man goes out to the far corners of the earth in his efforts to add to the world's supply of petroleum and its products, and is here today and there tomorrow, so to speak. He may form friendships that endure through life, yet find himself separated from his friends through exactions of his work and the job in hand. From this standpoint, the Exposition offers an unparalleled opportunity for a foregathering of oil men from everywhere, a renewal of acquaintances and a cementing of friendships continued through long separation. It is annually the greatest gathering of oil men of all walks of life known to the industry, and this, to my mind, is one of the most attractive features of the Exposition.

The city of Tulsa is interesting and worthy of a visit for its own sake. A prairie village twenty years ago, it is now a cosmopolitan city of more than one hundred thousand people—the world's recognized metropolis of oil. The fact that Tulsa is located near the center of the United States and at the heart of the great Mid-Continent oil region makes it particularly appropriate that the Exposition be held here, since a great concourse of people can attend without travelling such distances as would be necessary in reaching a location less favored. This busy, thriving, energetic city of oil extends a cordial welcome to oil men everywhere, and promises them a memorable good time. Ample hotel accommodations are awaiting them, including the splendid eighteen-story Hotel Mayo, recently opened—one of the finest hotels anywhere, while within easy motoring distance of Tulsa are many of the world's greatest oil fields.

As president of the Exposition, and as a life-long oil man, I urge all oil men to come to Tulsa for the Exposition. You will benefit by it and you will have a good time, so what more need be said to any oil man?

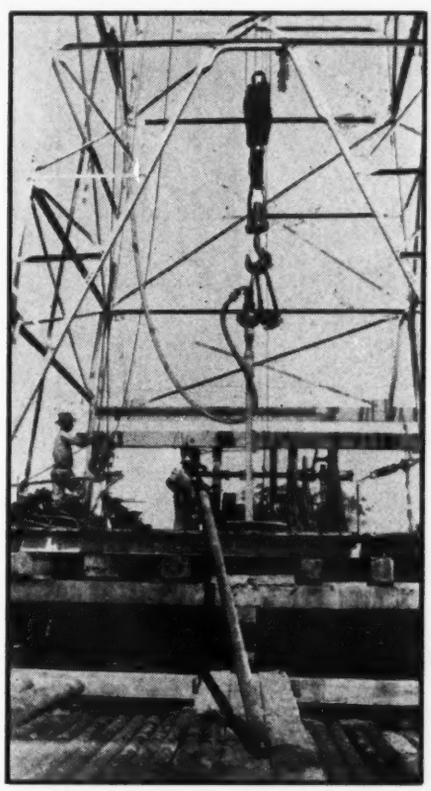
Digging of Cellar Avoided by Raising Derrick Floor

HOUSTON, Sept. 28

RESOURCEFUL operators recognize very quickly how a change in methods will increase efficiency in drilling for either oil or gas. These methods may relate either to the actual drilling operations or to the hook-up of equipment for carrying the work along.

The Houston Oil Co. of Texas, which is developing gas territory southwest of Houston, in Jackson and Live Oak counties, is getting full salvage value out of its equipment and obtaining a maximum of efficiency through its method of derrick construction.

An accompanying picture shows the No. 1 Westoff test of the Houston Oil Co. of Texas, near Edna, in Jackson county, which may be considered typical of the company's method of derrick construction.



Houston Oil Co. of Texas No. 1 Westoff well, near Edna, Texas, showing elevation of derrick floor.

The derrick floor is cribbed-up 10 feet above ground and the pipe rack is also raised about five feet; the steel derrick construction is mounted on timber base and the pumps are "set low" from the derrick floor.

Cribbing-up of the derrick floor results from the company's desire to place the master gate valve and blowout preventer underneath the floor and yet keep them above ground. This avoids the necessity of digging a cellar.

Fittings are more readily accessible where a cellar is not used and in the case of grief resulting from an accident there is far less danger for the men in working with equipment entirely above ground.

The practice in drilling wells in this gas territory is to first set surface casing and then run in 8¼-inch above the sand. On top of the 8¼-inch is fitted a master gate, then a nipple and finally a blowout preventer.

A well is finished by drilling into the sand through the blowout preventer and then setting liner. After the liner is set the blowout preventer is taken off for use on other wells.

High-test fittings are used to make up the regulation Christmas-tree, which is anchored to a concrete block, 16 feet square and five feet deep. This concrete block is poured immediately after the big (surface) casing is set.

Loops of wire with which to anchor the Christmas-tree are left in the concrete block at the time of pouring. These loops are used in connection with old pieces of rotary chains and turnbuckles to complete the anchoring operation.

After the Christmas-tree has been put on and anchored bailing is begun to put the well on production. Even should it appear that a dry hole is to be finished no chances are taken in completing a test.

Driller Has Benefitted Greatly Through Changes in Cable-Tool Equipment

By Lawrence E. Smith
N. P. N. Staff Writer

CLEVELAND, Sept. 28—A CRITICISM of the oil industry often heard is that no change in drilling methods has been made since men began to put down holes in search of oil and gas, or even prior to that when the cable tool, or percussion system of drilling was employed in putting down wells for salt.

Fundamentally, this is true. Excluding the rotary system, which is a development within the oil industry, the present cable tool method is basically the same as that used by Col. Drake in drilling his historic well. He employed a string of tools consisting of jars, stem and bit, a form of temper screw, steam as power, bailer for removing drill cuttings and did most of the things that are done in cable tool drilling today.

It is hard to see where there is room for much criticism. Crude and unwieldy as the present day cable tool rig appears, slow on some operations, haphazard in appearance to one not accustomed to it and with much of having the look of being improvised for the occasion, it nevertheless does the job and does it efficiently. It has been the history of the industry that when a thing was needed, someone came forward with the tool or the device that filled the bill. Quite frequently he was a man who made his living at hard work in the fields, without technical skill, but with the ability to work out his own problem and the way he did it soon became common practice.

It is quite beside the point, however, for any critic to say there have been no improvements. Any man who operated, say 40 years ago, can point out dozens of changes that have been made. It is not a condemnation of a method that first basic principles are still employed. The present day plow used by a farmer does the same work as was performed by a pointed stick drawn by human teams centuries ago. The method has merely been improved. Some first principles are sound and all there is to do is to modify and improve them.

There is no way of telling whether the cable tool system will last forever. The rotary has made great strides and has overcome most of the early objections to it. Some engineers are now thinking in terms of a drill which will carry its motor into the earth with it, electric current being supplied through cable which will also serve as a hoist. A few experiments have already been made along this line and while they have failed, there is no saying that ultimately such a system of drilling will not be worked out.

The cable tool method has, however, been responsible for finding the greater part of new oil territory the world over and it still is indispensable for a vast part of the drilling now carried on, both in new and old fields. Its place in petroleum history is secure.

It is interesting to contrast the earlier methods of cable tool drilling with those of the present day. The new is seen in any oil field using the method and is amply illustrated in the annual exhibits at the International Petroleum Exposition. The old lives in the memories of men who have grown up with the industry.

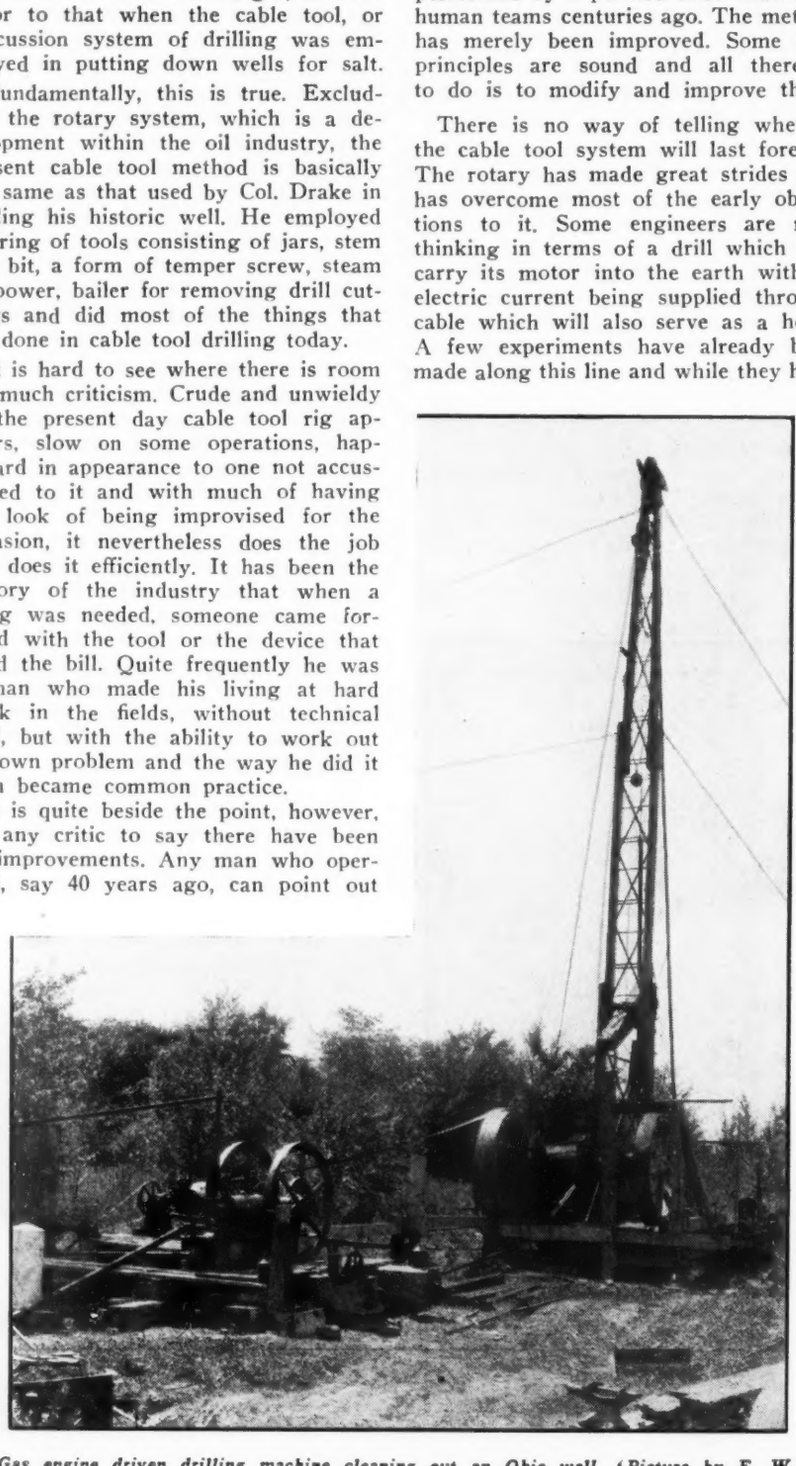
A Glance at Old Methods

"Looking back over 45 years to the year 1880 when I first came to the oil country in McKean county, Penn., I can see a lot of changes in the method of drilling for and producing oil, although in cable tool drilling and in pumping the oil with tubing and sucker rods, it is the old way with improvements." Thus writes C. B. Apple, of Cleveland, O., who has been in the oil business continuously since he started, a number of years in the supply business and more of the time a producer.

"In the drilling of wells by cable tools, heavier tools are used and the old straight pin joints have given way to taper joints. The bellows which was pumped by hand for heating the bits has given way to the blower. The old wooden sand reel has been replaced by the modern steel sand reel and more recently the chain driven sand reel has started to replace the type which is driven by friction from the band wheel, although the latter is still used to considerable extent.

"The derricks are similar in construction, but much heavier as deeper drilling called for the stronger construction. Tools are also much heavier.

"There is considerable difference in some of the methods of handling cable tools since I worked on my first well. In the old days it was considered necessary to dig a conductor hole, leveling off the rock at the bottom of the hole so the conductor could be set and the tools hang in the center of the conductor. Plumb bob was hung on the beam to guide the work. Only rarely was pipe driven and the conductor was wood. It was a fair-sized job to get this much done. When pipe was driven it was by means of a log and while this method was crude it was rapid.



Gas engine driven drilling machine cleaning out an Ohio well. (Picture by F. W. Bollman, Wooster, Ohio.)

"With the conductor in and the tools rigged up, spudding was started. Spudding with a jerk line and bridle was not the practice in the early '80s. At that time they put the spudding line over bull wheel shaft, making several coils on the shaft. Then two men would take hold of the spudding line and pull which would tighten the rope on the bull wheel shaft, thereby raising the tools to a desired height, then the men slackened up on the rope and the tools would drop. This was kept up until the hole was sufficiently deep that the rope socket and a few feet of rope was under the derrick floor. While spudding it was necessary to keep dashing water on the rope to keep it from burning from friction on the shaft and it was considered necessary to have a driller keep turning the stem so that the hole would be round.

Tough on the Driller

"After the spudding had proceeded far enough that the tools were buried, the crew would put up the temper screw, 'hitch on' and begin drilling the same as they do now. The temper screw, however, then had no guys and it was considered necessary to keep the tools turned at each stroke, the driller turning the tools continuously. You can imagine the condition the driller would be in when he went off tour after fighting the tools for 12 hours. With no guys on the temper screw it would weave backward and forward with the driller hanging on all the time to keep the tools turning.

"In the old days they did not know of such a thing as a jack and circle to make up tool joints, although very early a method was introduced which was the forerunner of the present system. It involved a great deal more muscular exertion, though, and added to the troubles of the already overworked driller.

"For wrenching and unwrenching tool joints, hardwood plank was placed on the floor of the derrick and holes were bored near the end of the tool wrench handles. A hole was bored at one point to put in an iron post for the stationary tool wrench. Then a straight bar was used to wrench the tools. This bar was drawn down at one end small enough to fit in the holes in the plank. At whatever point necessary, the bar would be put into a hole back of the loose wrench and by this leverage the loose wrench was moved to tighten or loosen the tool joint. It required two huskies on the wrench bar, one pushing forward and one pulling. Every now and then the bar would slip out of the hole and somebody usually landed in the corner of the derrick.

"Later this hardwood plank was replaced by a steel plate with holes in it, then a crooked wrench bar was used and finally came the tool jack and circle.

"Sometimes I wonder how our present crop of drillers and tool dressers would take it if they had to go back to the old days when the driller had to keep the tools turning and the tool dresser had to pump the bellows by hand to heat the bits and then fire a boiler with green wood picked out of the snow, such as was the case in the years 1880-81 and other years.

Fishing Tool Improvement

"Methods of fishing tools out of the hole when lost in the well were similar to those in vogue now, except that a great many new and improved fishing tools are now available to the driller. The similarity is that in those days common sense was the best equipment for fishing and the same is true today.

"In producing oil in the old days they used to work barrel, valve rod, polish rod, stuffing box and adjuster. The wells were pumped with an individual steam engine at each well, later being replaced by pumping power run by steam engines and a later replacement was the gas engine for pumping. Modern equipment does not necessarily employ an adjuster, which has given way to a pumping jack, but the rest of the equipment is the same. Of course, improvements have been made on parts of the pumping outfit, but the principle is the same—that of the up and down motion of the rods and working valve which gets the oil. The gas engine is being replaced to a considerable extent by electric power."

The deeper and deeper drilling required to bring in and develop new fields has called for supplementary equipment and the end of inventiveness has by no means been reached. The early day well, for instance, did not involve much difficulty in casing, now one of the big factors in reaching the desired depth. Formations in the early fields stood up well hence the chief role of the casing in the early times was to shut off water and the use of bags of seed for this purpose was common practice. Casing was light and not difficult to handle.

Better Casing Methods

Later and more involved drilling brought out the improvements in crown blocks. Formerly one or two casing lines were sufficient and all joints were made up by man power on a pole. The casing pole is still employed to considerable extent, but we now find wells using as many as 10 casing lines and sometimes a luff line run from the end of the beam gives still another. Tongs are commonly used and sometimes power is applied by the engine on the large strings to make certain of tight joints, using a jerk line from the band wheel crank to the handle of the tongs or pole.

The calf wheel was unknown in the early days. One of its virtues is that its speed is slower than the bull wheels and casing is handled with greater safety.

Spiders and slips for holding casing securely are commonly used now except in eastern fields, where their introduction did not come for a number of years after they had been used in the west. It was only about five years ago that Ohio operators adopted the spider. It is coming to be general practice in the east, particularly in the deeper drilling.

Early day operators were not so much concerned with underreaming as now is the case. Shallower drilling and fewer strings of casing enabled them to finish with a fair-sized hole without spending so much time in shearing off the sides of the hole. Along in the early '90s, some patents were issued on underreamers. Among the pioneers in developing the tool with the expanding cutters was Pat Yorke, of Washington, Pa., who is still active in the supply end of the industry. A great many improvements have been effected in underreamers and in all but the shallowest fields this type of equipment is now essential.

Verily, the life of the driller and tool dresser is much easier in many respects than it was early in the game. Gas flares and oil lamps or lanterns, which formerly gave uncertain illumination for night drilling—increasing the chances of accidents to the men—have generally been replaced by small steam turbine generators which provide proper lighting. Traveling blocks and cranes enable the men to handle tools with comparative ease. Bit dressing calls for less muscular effort, for along with the disappearance of the old hand bellows for the forge the dressing of bits with sledges has been replaced to considerable extent by the ram, actuated by the band wheel. More lately, the practice of dressing bits in company shops has come in and presently all bits will be shop dressed except on remote wildcat tests where shop equipment has not been set up.

Younger drillers, says one of the older generation, have not been called upon to splice cables as the wire line has come into use and the art of making a perfectly rope splice is rarely met with these days.

Notable advance has been made in the derrick, itself. The steel rig, like the rotary method of drilling, has proven to its critics that it will serve any purpose and meet any test to which it may be put and the rapidity with which the wood rig is being replaced argues that within a few years it will be a rare sight. The increasing difficulty of getting good rig timbers in some sections of the country is a factor that is hastening the universal adoption of steel.

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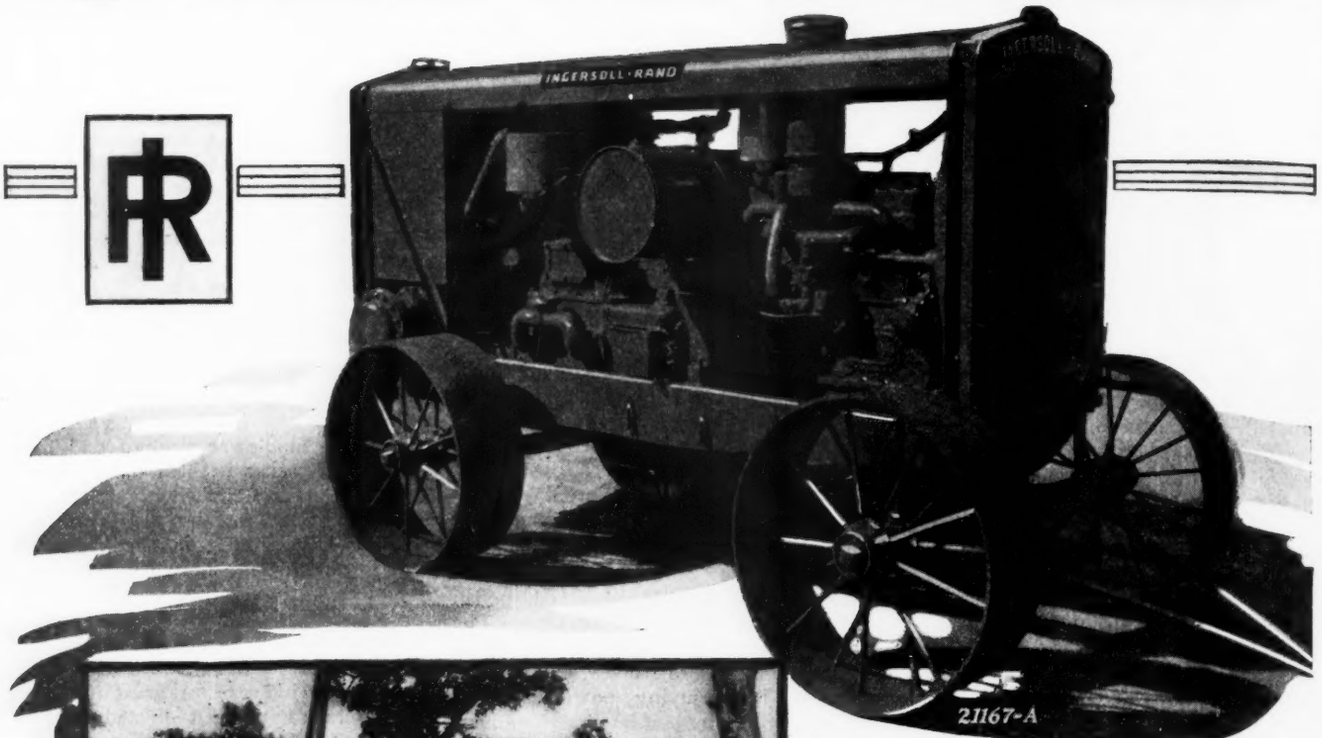

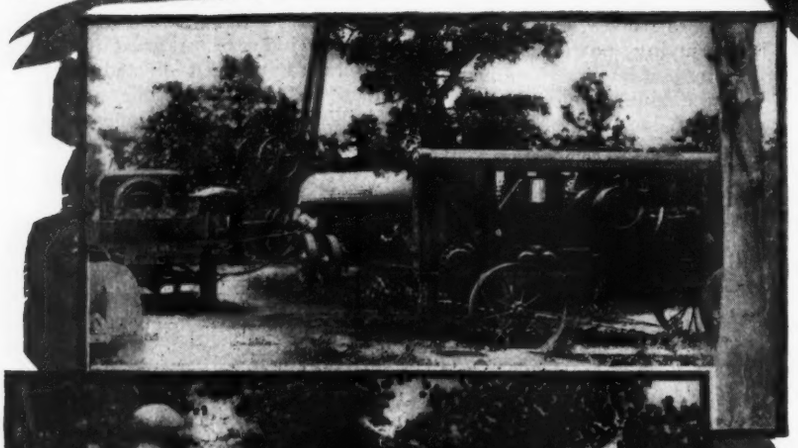

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Use of Rotary Tools in Oklahoma Has Spread Rapidly in Few Years

By A. F. Hinton
N. P. N. Staff Writer

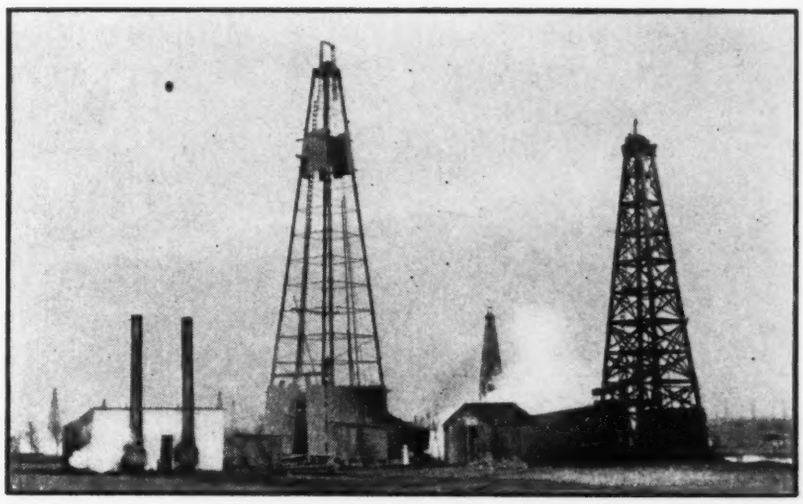
TULSA, Sept. 28

THE rapid spread of the use of rotary tools in Oklahoma in the past few years is one of the most interesting developments in the history of Mid-Continent oil operations. The fact that the rotary made good in the face of a great deal of opposition and expressed beliefs that it would not work, on the part of operators whose sole experience in the past had been with cable tools, is perhaps the greatest victory that has been won by this particular type of drilling equipment.

The feud between cable tool and rotary men has become one of the traditions of the industry, dating back at least to the days of the boom at Spindletop, and the comparative merits of the two drilling methods has ever been good for an argument whenever the advocates of each type get together. The past few years in Oklahoma, however, have seen a considerable lessening of this feeling until now we have the remarkable spectacle of the two methods being used side by side and of contractors owning both rotary and cable tool strings.

A few years ago it was popularly asserted—and believed—that formations in Oklahoma were too hard for the rotary to negotiate, and that fields in that area would continue to be drilled by standard tools from then on out, as the saying goes. No one dreamed at that time that some of the biggest fields in the state's petroleum history would be drilled entirely with rotary down to the producing sand, nor could anyone picture in his mind an Oklahoma oil field crowded with 122-foot derricks, with the clank and rumble of rotary tables greeting the ear on all sides.

Yet, this is just what came to pass. It is now common practice in almost all fields in Oklahoma to start with rotary tools, after the discovery well, drilled with cable tools, has shown the way down, and to use the rotary method to a point somewhere near depths at which sand is expected, or at some good casing point in the vicinity. In fact, it is said by advocates of rotary drilling that Tonkawa, for instance, one of the greatest of Oklahoma fields, could never have been successfully drilled with cable tools, because of the cavey formations and frequent gas and water sands, each of which would have required the setting of a string of pipe. Unknown in the state up to ten years ago, it is estimated that there are now 400 strings of rotary tools in Oklahoma.



Rotary and cable tools side by side at Tonkawa

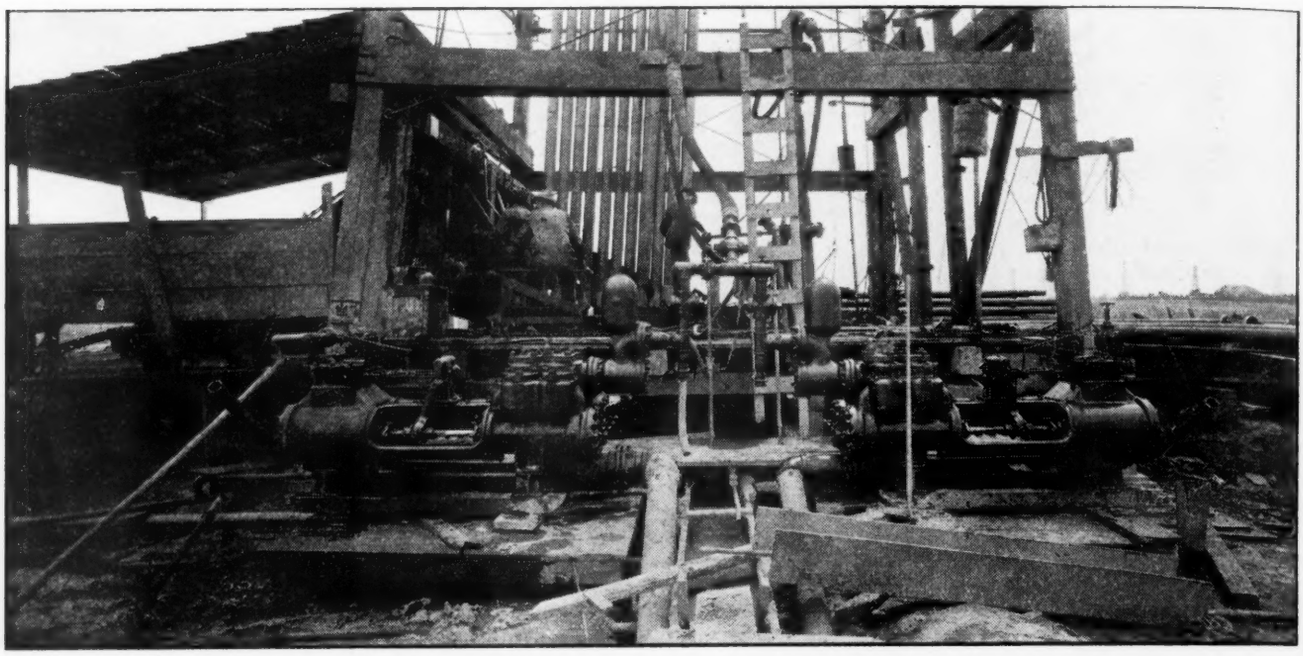
For wildcat drilling, the cable tool method still has the call, for several reasons, chief of which is the possibility of passing up good oil showings with a rotary which would be easily discerned when standard tools are used. However, this objection could be done away with by the use of a core-barrel through each formation. Thorough coring, in fact, gives much more accurate and valuable information as to formations drilled through than do returns even from cable-tool drills, so that a rotary-drilled well should not pass up any more showings than one drilled with cable tools, if coring is resorted to. However, coring is comparatively in its infancy in Oklahoma, not being used as generally as it will be in time. Another reason for preferring cable tools to rotaries in wildcat drilling is that the former requires much less fuel and water, using one 40 h.p. boiler as against the rotary's two 90 h.p. boilers.

Contractors Use Both

The practice of drilling with a rotary down to a given point, and there "standardizing," or rigging up cable tools for the rest of the way down to the sand, has become so general now that companies are demanding that contractors use both styles of drilling, as it is much preferable from the company's standpoint to have only one contractor work on the well. The wells are standardized chiefly for the reason that drilling in with rotary is forbidden by the Corporation Commission in most fields. In other sections, such as California and the Gulf Coast, wells are generally drilled in with rotary. Thus, most Oklahoma drilling contractors now have rotary as well as cable-tool strings, and are taking to the new order of things as easily as if they had been drilling rotary wells all their lives. The driller, however, still is in the nature of a specialist, going "up and down" or "round and round" according to what his past experience and training has been. The cable-tool driller still snorts in derision at rotaries, and vice-versa, but the rotary in Oklahoma has come to stay, nevertheless.

Of famous fields developed in the past few years, Burbank was drilled altogether with standard tools, Tonkawa was a 100-per cent rotary field, and Cromwell was about evenly divided between the two, as were Papoose and Wewoka. The deep sand development at Tonkawa and the more recent Wilcox discovery at Garber found nothing but rotaries in sight, although earlier days in Garber had seen rotaries tried and given up in favor of cable tools. Drilling following on the heels of new discoveries, such as that of Skelly Oil Co. northwest of Stroud, and that of the Shaffer Oil & Refining Co., near Mehan, is all being done with rotary.

The Cromwell field, where the number of rotary-drilled wells about equalled those drilled with cable tools, gives a good opportunity of comparing one method with the other as to drilling-time, cost, freedom from or frequency of fishing jobs and accidents, as in that field it apparently was about an even break as to which was the better method. Subsurface conditions naturally are the chief factor in the superiority of one method over the other;



Typical rotary rig, showing mud circulating pumps.

in some fields the operator practically is forced to use the rotary while in others the standard tool method is manifestly the more desirable. In Cromwell, however, it was possible to use either, thus giving a fair test.

Comparison of Methods

In Cromwell, according to figures given in "Petroleum Engineering in the Cromwell Oil Field," issued early this year by the U. S. Bureau of Mines, the cost of drilling a well with cable tools all the way was almost identical with the cost of drilling with a rotary to about 3000 feet, leaving 500 feet of hole to be made with cable tools. In this report, the cost of a cable-tool well 3500 feet deep was given as $49,602.48, while the combination rotary and cable-tool method, with 3000 feet of rotary and 500 feet of cable tools, was placed at $49,532.01, or about $100.00 in favor the combination method. The figures show an expense for casing of $20,272.48 in the cable tool well, and of $10,252.91 in the combination well, there being six strings of pipe in the former and three in the latter, including surface pipe in both cases. Each well also had 200 feet of 5-3/16-inch liner. The drilling contract showed $7.00 a foot for rotary and $4.00 a foot for cable tools, resulting in drilling cost of $22,500.00 for 3000 feet of rotary hole as against $14,000.00 for 3500 feet of cable-tool hole. Thus the saving in casing was offset to an extent by an increase in the other principal expense, that of drilling.

In drilling-time, however, the rotaries showed up much the better of the two, according to the report. A comparison made of 64 wells, 32 drilled with cable-tools and 32 with the combination method showed that the former required an average of 72.34 days to reach an average depth of 3421 feet, while the same number of rotary-drilled holes averaged only 36.50 days to get down to an average depth of 3159 feet. In both cases, the time given included time lost on account of fishing, running casing, or waiting for cement to set. The comparison is not altogether fair, however, unless it is remembered that the cable tools had to do the hardest drilling, which was that met with in drilling through the high pressure gas zone in the upper part of the Cromwell sand. The report stated that often as much as a month was required to drill through the gas bearing portion of the sand into the oil.

The report also showed that time lost on account of fishing jobs and other drilling accidents was much greater on the cable-tool rigs than where the rotary was used. At the time the report was compiled, 15 wells had been abandoned in the field on account of casing and fishing troubles, of which 14 were cable-tool wells and one was a rotary.

Thus, in the Cromwell field, it cost about the same in money to drill with a rotary as it did with cable-tools. There was less time lost on account of drilling troubles on the way down, and the rotary wells got down to the sand somewhat quicker than the cable-tool wells, although, as stated, much of the time shown as consumed by the cable-tool wells was used in getting through the gas sand. It is significant that the only well completed in Cromwell with a rotary was drilled to 3472 feet, and required 71 days drilling time, which is almost the same as the average of the 32 wells drilled down to that depth with cable tools all the way. Altogether, it was just about an even break between the two methods at Cromwell.

At Tonkawa, the number of gas sands drilled through made it practically impossible to drill with cable tools, or at least it would have been impossible to get down to the Wilcox sand with this method, except by finishing the well with a small hole. When the field's development had been carried only as far as the 2600-foot or Tonkawa sand, it was almost impossible to complete a cable-tool well without setting a string of 5-3/16-inch pipe, using besides a string of 20-inch, 15½-inch, 10-inch, and 8-inch casing. Many wells were completed to this sand with rotary tools, using only one string of 8¼-inch casing and a 6⅝-inch liner. It is easy to see why rotary tools got the call at Tonkawa.

Early Rotary History

Although several small rotary outfits had been tried out in Oklahoma prior to 1916, they were all of the "coffee grinder" variety for very shallow wells, and not to be spoken of as real rotaries for heavy duty. The first heavy 20-inch rotary used in Oklahoma was shipped into the state for the Roxana Petroleum Corp., late in 1916, to drill a well 11 miles southwest of Perry, near Lucien. This was the first rotary to arrive in the state, but as it did not start rotating until the following March, another rotary machine actually gets the call as the first to start drilling. The American Well & Prospecting Co. had shipped two rotaries into the Blackwell field, and got started drilling a few weeks ahead of the Roxana. A short time after

the Roxana got started, Guffey & Gillespie put in a rotary in the Billings field, and thus are entitled to membership in the First Rotary Club of Oklahoma.

These early experiments had pretty hard sledding, partly on account of hard formations, especially at Blackwell, but principally because of the poor quality of drill pipe then used. The Roxana's Lucien test drilled to 2250 feet before standardizing; it had its first fishing job at 1650 feet and from there to 2250 feet, it had 67 fishing jobs, all on account of bad drill pipe. The wells at Blackwell went to about 2300 feet with rotary and the method was abandoned there. This well and that at Billings also had a large number of fishing jobs.

In the meantime, oil had been discovered at Garber, and Sinclair Oil & Gas Co. introduced the rotary there in the fall of 1917. On its first well it had lots of grief and many fishing jobs, but finally completed it with the rotary for a 600-barrel well, the largest in the field up to that time. It was on the Crews farm and in the 2100-foot sand. Roxana bought another rotary at about this time and drilled a well near Yale, which was finally completed after many vicissitudes, including skidding the rig after losing the first hole on acount of frozen drill pipe. This well went to about 2200 feet with rotary, setting the 8¼-inch casing there, and was completed for a small well with cable tools. Another well was driled with rotary along the railroad right of way between Yale and Quay at about this time, by the Federal Drilling Co. In the summer of 1917, also, the Empire Gas & Fuel Co. tried out the rotary on a well it drilled near Meridian, Okla., southeast of Guthrie.

In the spring of 1918 the rotary situation looked rather gloomy, as both the rigs used at Blackwell had been shipped back to Texas, the Empire had given up its idea of using the rotary, the Federal Drilling Co. had shipped its rig out of the state, and all the wells on which rotary had been used had had a great deal of trouble. Then the Roxana decided to make a final attempt, on the outcome of which the fate of its use of rotaries hung. It shipped a rig into the Garber field and started it to work on the Schroeder lease, which is just now prominently in the public eye on account of its big Wilcox sand wells. Under direction of Hugh B. Hodges, now with the Lucey Manufacturing Corp., and one of earliest rotary operators in Oklahoma, this well had 1998 feet of 8¼-inch pipe cemented in 31 days drilling time, which stood as a record for the field until the deeper sands were discovered this year. Thus the rotary finally made good, at least as far as Garber was concerned.

Sinclair Oil & Gas Co., which had one rotary string running in the field, then ordered five more, Roxana bought two more, and the Carter Oil Co. bought three, while Cosden Oil & Gas Co. contracted for one rotary-drilled well with Whitney & Patterson of California. A few months later, in 1918, Sinclair bought four more rotaries, making 10 in all. At one time, 17 strings of rotary tools were operating in Garber. All of these, as it happened, were Lucey rotaries.

The rotary outfits were forced in most cases to operate in the face of considerable prejudice on the part of the cable-tool production men, and were hampered in various ways in their effort to make hole quickly and cheaply. However, one company operating them in Garber drilled all its wells at an average cost of $6.00 a foot, it is said, as against $10.00 and $12.00, approximately, spent by two other companies. It is interesting to note that present contract prices in the Garber field, on the deep wells, is $9.00 a foot for rotary and $7.00 a foot for cable tools.

When the crude market collapsed in 1921, Garber was shut down along with all other Mid-Continent fields, and when drilling was resumed there, cable tools had again gained the ascendency, retaining it until this summer, when the rotaries were again brought in to drill up the newly-discovered sands. The impression was general that rotaries were abandoned at Garber on account of difficult conditions and hard formations, but it is probable they would have continued to operate had it not been for the shut down. Tonkawa came in at about the time the shutdown was coming to an end, and rotaries were used there from the beginning.

The Durable Rotary

All of the rotaries used in the early days of the Garber field are still in use, some of them now operating again in that field after having travelled pretty generally over the country, and having drilled "miles of hole". One of them, owned by Vern Brown, he having bought it from Guffey & Gillespie at Billings, drilled five wells at Burkburnett, a dozen in the Fox field of southern Oklahoma, operated continuously for the Roxana in Tonkawa, and is now back in Garber. In 1919, rotaries were introduced into southern Oklahoma and in 1922 the Carter Oil Co. tried out a rotary in the Bristow district. This experiment was not a success and Bristow has remained a cable-tool field.

Yes, the rotaries are here, and here to stay, but some of these old-timers from Pennsylvania and Ohio are having a terrible time getting used to them. They may be all right, they say, but you can't tell me—there's nothing like the old beam and temper screw for making hole.

Triple Rotary Record Is Broken Second Time

LOS ANGELES, Sept. 28.—The E. J. Miley No. 6 test in the Rosecrans field of the Los Angeles Basin has established new records for rotary drilling a second time within the last month.

The Miley test had broken the record of other operators, Aug. 27, when it became the deepest rotary hole ever drilled; the deepest test ever cored; and the deepest test in which the sand showed oil saturation. The drill at that time had passed the 7400 foot depth. The previous record for rotary drilling had been held by the Union Oil Co. of California, which went to 7320 feet with a 4¾-inch hole and successfully cored formations in its Gardena test at Dominguez.

Now the Miley test has broken its own record. At 7484 feet it was coring oil saturated sand and shale, exceeding its own triple record by more than 80 feet and the Union's earlier record by fully 160 feet.

Less than 255 days of elapsed time had been required to put down the Miley No. 6 test to the 7484-foot level, of which not more than 190 days represented actual drilling.

The usual type of fish tail, disc and rotary bits were used in the Miley test down to the 4526-foot level, after which the Hughes rock bit and Elliott core barrel were used for hole-making purposes.

New Type Placard Made for Tank Cars

TULSA, Sept. 28.—A new type of warning placard which cannot be taken from a gasoline car has been invented by H. J. Olson at the El Dorado, Kan., refinery of the Skelly Oil Co. The placard will be exhibited at the International Petroleum Exposition from Oct. 1 to 10 on a special tank car which will constitute the exhibit of the North American Car Co.

The Olson placard is made of heavy metal covered with enamel. The background is white with enameled lettering of black and white. One side bears the standard inflammable placard wording and the other the inflammable vapor warning to railroad workers.

A bar fastened across the back of the placard fits in grooves of a Y-shaped bar bolted to the running board. Above the slot is a circular hole large enough to permit the placard bar to turn. When a car of gasoline is unloaded the placard may be lifted up, turned to show the inflammable vapor warning and dropped back into the slot.

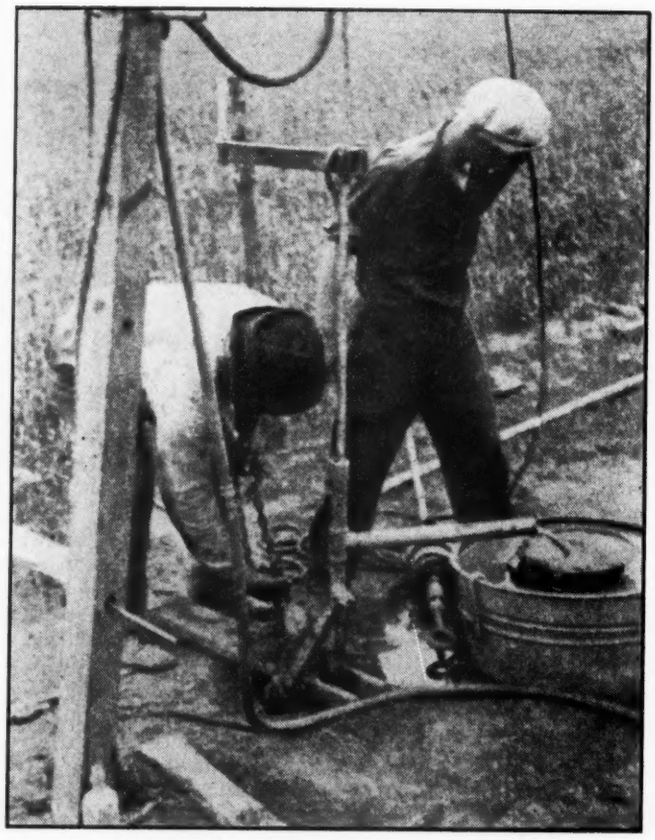
Technical Exhibits Typify Changing Attitude Within Oil Industry

By Paul Wagner
N. P. N. Staff Writer

YEARS ago, it was considered the proper attitude in the oil industry to poke fun at the geologist and the petroleum engineer. Any idea of a technologist then was to be discarded as an impractical dream. Nothing good could come, it was believed, of research work and the application of principles based on the resulting findings.

Gradually this attitude began to disappear in the oil industry. It came to be realized by "hard-boiled" production men of the old school that the "creekology" they recognized and the trends they followed were, after all, part and parcel of the geology they had previously scorned.

Now it is recognized that geology is nothing more than applied common sense based on such data as it may be possible to measure in careful research. Geology is not an exact science even yet and it may not be regarded as infallible. The fact remains, however, that it has saved the industry millions of dollars as a result of its application to mapping of favorable or unfavorable territory.



Hand-operated rotary equipment which uses a gas engine for water circulation is now being used in central north Oklahoma to drill shallow test holes for geology. Outfit shown in the picture is being used by George Morgan of the McCaskey & Wentz organization, Ponca City.

Sub-surface geology naturally comes more nearly within the range of an exact science than does purely surface geology. It is in reality the first step in petroleum engineering, which goes far beyond the principles of geology and which plays a definite part in actual field operations in the development stage of a pool.

Topography does not necessarily indicate underlying structure under certain conditions, a fact that is generally recognized both inside and outside of the geological profession. Under other conditions surface structure may be depended upon with a fair degree of certainty, but the time is fast coming when oil indications of this character will be more closely narrowed down.

The foregoing statement is made advisedly to the extent that it recognizes the future possibilities to be opened up by the development of more definite knowledge about conditions now partially obscured. As research causes obscure data to be explained it may be possible to extend geological work and petroleum engineering beyond their present functions.

More Study of Sources

Drilling of otherwise favorable structure may result in the failure of test wells because of source rocks being absent from the area, or any of a number of contributing factors may work for or against the successful completion of a producing well in new territory.

The geologist undertakes to minimize the risk of the operator by measuring these factors to the extent of the available evidence. Anything that tends to clarify data on the possibilities of an area provides just that much additional information as an offsetting factor against the always present risks of exploration and development.

Because of the changing attitude within the industry there can be no doubt of the value attached to scientific and technical exhibits such as those shown in the Wyoming building at the International Petroleum Exposition. These embrace working models of methods employed not only in the production branch of the industry but the refinery and distribution branches as well.

There may be seen side by side in the Wyoming building models of tank cars and natural gas gasoline plants as well as peg models of oil fields, samples of sand strata and an abundance of other exhibits bearing upon production in general.

An exhibit by the American Institute of Mining & Metallurgical Engineers at the 1924 exposition was so installed as to typify conditions existing in an oil sand, showing how porosity and pressure work together in their effect upon the exploitation of a pay horizon.

Exhibits of this type have their bearing on an understanding of conditions under which the most efficient producing practices may be carried on. Not the least of these is the development of petroleum engineering along the lines of the maintenance of proper oil-gas ratios in a producing sand for the purpose of obtaining the most efficient production and maximum ultimate yields.

Studies of oil sands by horizons and localities permit the adoption of producing methods most suitable to the recovery of maximum yields. Here the technologist, or sub-surface geologist, gets in his best work from the viewpoint of petroleum engineering.

Functions of Paleontology

The study of formation samples, which is being developed in the petroleum industry through micro-paleontology, may be considered from two separate but related points of contact. Micro-organisms found in the various beds penetrated by the drill invariably display distinct types from one formation to another. It is possible, therefore, to establish definitely the age of a for-

mation as regards its correlation with bedding elsewhere.

Micro-paleontology thus brings exactitude to geological correlations that otherwise might have to be considered theoretical. It is necessary, of course, to take samples carefully. Upon such care depends the accuracy of the computations of dips measured, whether local or regional. This work, when carried on with due regard for the adjustment of above sea-level elevations makes geological mapping far more accurate than was possible prior to the utilization of micro-paleontology.

Importance of Contour Maps

No general exhibit of the character of the technical showing at the exposition ever fails to include contour maps, scientific instruments and other equipment generally used in exploratory and development work.

A structure contour, as represented on a map, is a line connecting all points on the key bed to which it refers that have the same above sea-level elevation. It is possible to determine from the contours the shape or lay of the key rock. The dip is greater where the contours are close together than it is where they are widely separated.

In surface work geology must depend on key beds, either present at the surface or established by core-drilling to exist at reasonably shallow depths. Sub-surface work, as generally understood, has to do with the establishing of contours on a producing horizon by means of well and formation records (logs), which should be carefully kept.

The use of sub-surface geology is carried to the extent in California that many companies do not permit their drillers any discretion with regards to casing points, which are picked by resident geologists working in conjunction with the head of the production department and their superiors in the geological department.

It will be understood, of course, that this work is carried on by men established in their profession and recognized for their abilities. Almost invariably these men form integral parts of the operating organization and are not brought in from the outside except in the case of individuals consulted because of some unusual problem with which they are especially fitted to deal.

What Constitutes a Geologist

Parenthetically, everyone who calls himself a geologist is not entitled to consideration from the viewpoint expressed in this article. The geologist is no less a professional man than is a doctor or a lawyer. There are the good and the bad in all professions. It is here meant to deal only with those recognized for their abilities in one or more phases of geological work.

It may be explained, further, that geology and petroleum engineering include among their adherents many specialists. Recognized workers probably would acquit themselves favorably in any part of the country, but a specialist in Gulf Coastal Texas, for instance, would work at a disadvantage in obtaining maximum results in the Rocky Mountain region, or vice versa. A man standing at the head of the profession in sub-surface work would not have similar facility of movement, nor would he accomplish the same results in surface work as a specialist in that division would attain.

The situation is little different than that which accounts for eye, ear and nose specialists in the medical profession as against heart specialists and general practitioners. When this condition is clearly recognized the geologist will come more nearly within the range of accomplishing what is desired of him.

Advantages of Exhibits

From the viewpoint of the visitor at the exposition he is in position after viewing the exhibits to more clearly visualize the importance of technical work and the methods to be pursued by men responsible for it.

Men actually engaged in technical work will have the opportunity of discussing with other technologists the results obtained in fields where they do not personally work and they will have the further advantage of studying conditions that indirectly or directly bear on their own problems.

Whether this year's exposition will include exhibits of the seismograph and torsion balance instruments that have come to play an important part in oil country explorations the last few years the writer cannot say in advance. These instruments, which are based on scientific principles, are used to map underground structures at points where surface evidence is lacking.

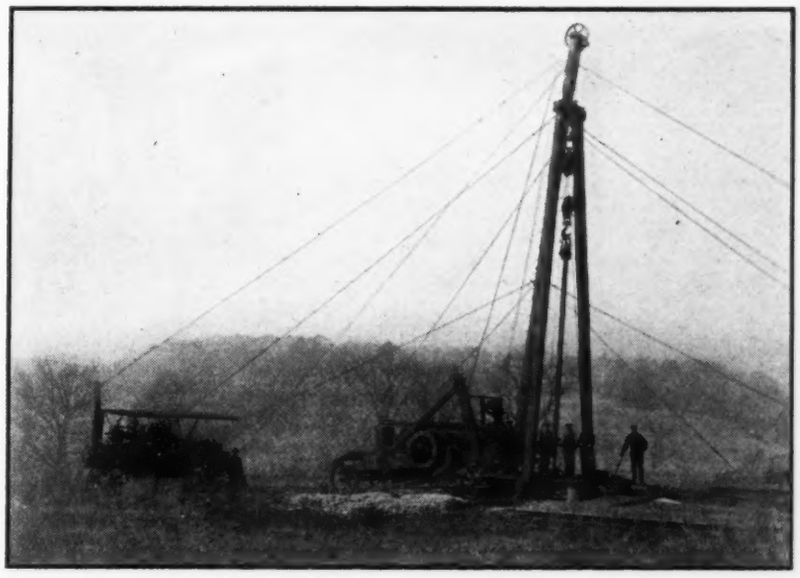
The torsion balance measures the density of sub-surface formations on a gravity principle, whereas the "Seismos" measures the time required for the transmission of waves, or vibrations, through underground formations, thus giving a clew to the structure and composition of beds.

It may be said, however, that exhibits exemplifying other and equally important practices applying to the development of oil fields will be found in the Wyoming building. Besides those having to do with the study of formation samples and contour mapping there will be peg models, which permit the visualization of field conditions by their utilization.

Invariably, exhibits of this character include showings by federal and state bureaus that have more or less value to the individual and a definite appeal from the broader viewpoint of the industry as a whole.

A total of 25 samples of oil shales from Colorado and Utah composed an exhibit made at the 1924 exposition by the United States Bureau of Mines. These are of more than passing interest because of the part that vast deposits of such beds may be expected to play in the petroleum industry of the future.

The Bureau of Mines also exhibited 420 samples of crude oil from the various fields of the world. Such exhibits as these tend to give the operator in localized territory an idea of the characteristics of petroleum found elsewhere than the area to which his activities are confined. Studies of these oils in relation to sand characteristics and other data are not only of general interest but also, oftentimes, of great practical value.



Steam traction engine used with drilling machine for pulling pipe at an Eastern well. (Picture by F. W. Bollman, Wooster, Ohio.)

Pioneer in Natural Gasoline Industry Tells of Earlier Practises

By J. C. Chatfield
N. P. N. Staff Writer

TULSA, Sept. 28

THE historian is ordinarily a studious person who delights in digging through hundreds of musty books and manuscripts to dig out the essential facts in the development of a nation or an industry. There are few industries where it is possible to sit down with one individual who is able to reach back in his memory and relate incidents of the days of pioneering and trace step by step the progress from experiment to commercial success.

But the oil business is peculiar in a good many respects and the natural gasoline division of the oil industry is one of its youngest divisions. And the historian of the natural gasoline division, if one should arise within a few years, may find individuals whose memory is clear of the first commercial natural gasoline plants in the United States.

In his volume, "The Recovery of Gasoline From Natural Gas," George A. Burrell says that "The Bessemer Gas Engine Co. and Frank Peterson deserve a great deal of credit for establishing the industry on a firm commercial basis."

It is only a little over 15 years ago that the Bessemer Gas Engine Co. employed Mr. Peterson to devote his time to the development of the business of extracting gasoline from casinghead gas. Prior to 1910 drip gasoline had been collected in some places and a few scattered compression plants had been built which were producing some gasoline. The Reno Oil Co. at Sistersville, West Virginia, started out making gasoline by first installing gas pumps to pull gas to their plant to be run through cooling coils and later adding the feature of compression.

Bessemer Development

These early successes in recovering gasoline at a time when the motor car was coming into general use and gasoline was in demand caused executives of the Bessemer company to take Mr. Peterson from the artificial gas industry and set him to studying gasoline extraction.

The manufacturers of gasoline by either simple cooling or compression and cooling were losing a large part of the gasoline they recovered before they could get it to market. Ends blew out of drums and vented storage tanks in many cases lost more gasoline than was sold. Blending at the plant was unknown.

Although he has taken some time out to drill a few dry holes on his own account Frank Peterson is still in the business of extracting gasoline from natural gas. He is in charge of Mid-Continent Petroleum Corp. (Cosden) plants in the Cromwell district. In order to hear some of his early experiences the writer went to Cromwell where the Mid-Continent has a large modern oil absorption plant.

(Continued on Page 67)

Reno Oil Co.'s No. 1 gasoline plant at Sistersville, West Virginia. This was the first plant in West Virginia and was one of the earliest successful plants ever built. (Photograph courtesy of the Bessemer Gas Engine Co.)

Carbide & Carbon Chemicals Corp. stabilizer installed at Mid-Continent Petroleum Corp.'s plant at Cromwell, Okla. Gasoline storage tank in foreground was insulated and converted into steaming kettle for use in connection with rectifying column.

(Continued from Page 64)

"Back in March, 1910," Mr. Peterson began as he tipped back in his chair in the Cromwell plant office, "I was up at Kinzua, Pennsylvania, where I had heard there was a plant making gasoline by a secret process. No one was allowed in the plant. But I wanted to know.

"It was raining steadily that evening after I had finished some other work I had to do in Kinzua. So I put on my coat and walked out to the plant. The gate was open and I walked in under a shed where the engineer was sheltered. After a few scattered remarks about the weather I told him who I was and explained what we were trying to do in developing the industry.

"Finally I brought him to see our point of view and he agreed to take me through the plant. Naturally I was all eyes, front, back and sides. I saw that he had a compressor but what interested me chiefly in that room was a tiny pump attached to the crank shaft. The pump appeared to have a stroke of about seven-eighths of an inch with a cylinder diameter of about five eighths of an inch.

First Hot Blending

"I had heard before that naphtha was hauled into this plant daily in barrels and gasoline hauled away. And I found that the little pump on the compressor was pumping naphtha into the hot gas stream leaving the compressor, and that the mixture was being circulated through cooling coils and collected in an accumulator tank. So in March, 1910 the best method which has yet been devised for blending at a natural gasoline plant was being practised by M. D. Shirley at the Kinzua plant of J. W. Miller."

George Burrell in his book previously mentioned says that "hot blending" was not done until 1911 at a small test plant in southern Ohio operated by B. Stroud and Henry Gulick. Apparently Burrell has not heard of the actual commercial application of blending in the hot gas stream done by Shirley who later joined the Bessemer staff of engineers.

Gasoline Trap

"I was tremendously interested in the accumulator tank when I saw an ordinary steam trap connected up with it. The engineer told me that he had taken a steam trap and ground down

the bucket until it would dump the light fluid properly.

"There was a small fire under a tank out in the plant yard. I touched the tank with my hand and found it was just fairly warm, probably about 140 degrees F. A line from this led to the condenser coils and I was told that vapors were being taken from crude produced on the lease and run in with the naphtha and compressed casinghead gas.

"This plant, in March 1910, was actually doing everything which has ever been done successfully in the manufacture of gasoline from casinghead gas by the compression method. The traps for dumping accumulator tanks are in use in all plants today, the naphtha injection into the hot gas stream is the best method of blending at the plant.

"I have good reason to remember that idea of blending at the plant from an experience I had the following year, 1911, when sixteen men in the Bessemer organization went into the gasoline business on our own account. It all came about because W. J. MacArtney had been trying unsuccessfully to sell a Bessemer to Si Ferguson.

Coils In Creek

"Si Ferguson built a compression plant at Follonsby, West Virginia, in the Sistersville district, early in 1911. He had a straight line steam compressor at the plant and was treating some very rich gas from about 150 wells. Hot gas from the compressor was run through about 2400 or 2500 feet of 2-inch pipe which had been laid in the bed of the creek for cooling.

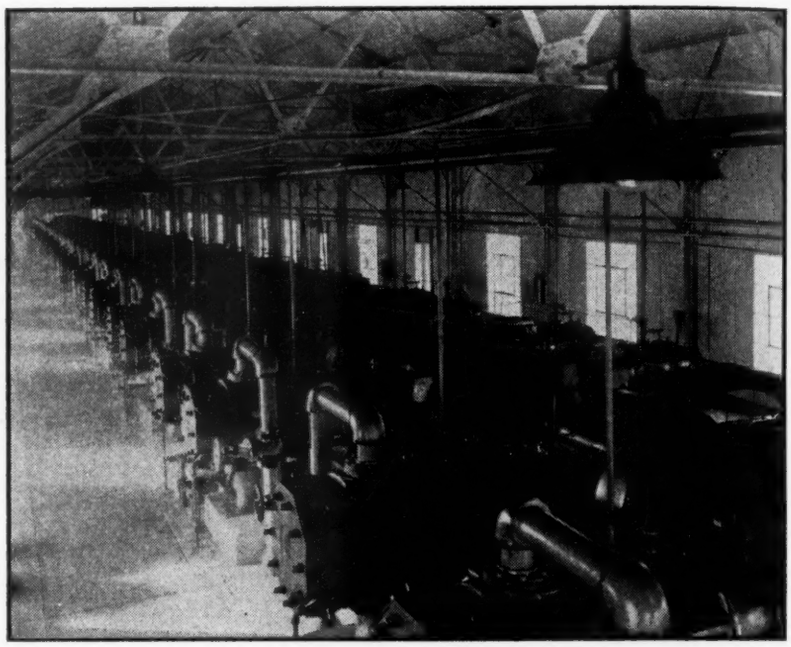
"Something appeared to be wrong with the cooling system. Production of the plant was not what it ought to have been. When I called at the plant to see what could be done I ripped out 1800 feet of the coil and production jumped up immediately from 90 to 110 gallons per hour.

"At one of his calls at the plant to sell a Bessemer to Ferguson, Mr. MacArtney got the idea that the natural gasoline business was going to be mighty profitable and he suggested that a group of us buy the Ferguson plant at Follonsby and another be built at Holliday's Grove, about five miles up the river.

"We found the market for natural gasoline to be so many cents per gallon and a visit at the plant showed the gasoline level to be fairly walking up the glass in the accumulator tank. It looked like a big thing.

"But we slipped up in one respect. We didn't check up on the amount of gasoline which was actually sold.

"We borrowed enough money to buy the plants, sixteen of us, and formed the Oil State Gasoline Co. Bill Sloan, now of The Sloan and Zook Co. at Bradford, was made general manager. We agreed to give Ferguson a 50 per cent royalty for his gas.



Engine room of Mid-Continent Petroleum Corp.'s gasoline plant at Cromwell, Okla. A typical modern installation for handling large volumes of gas.

"A contract was made with Jim Berry to sell him the output of the plant over a year at something like 11 cents per gallon, as I remember it. We were to pump the finished gasoline into a 400-barrel tank down the hill and he was to have a reasonable allowance for storage time before it was necessary for him to take the gasoline and pay for it.

"We were making from 2000 to 2400 gallons per day of gasoline but we began to find that checks covering purchases were far from being as large as we expected. It seemed that we could continuously keep pumping into that 400 barrel tank without results. Finally I went down to the tank and found two vent pipes from it. Our gasoline was vaporizing fast enough to make two perfectly good flambeaux of those vent pipes.

"The gasoline market was declining and we had agreed with Berry that he could take the gasoline at his convenience so we finally settled with him by a cash payment and the contract was cancelled.

"It was worrying us that every month we had to deliver a check to Si Ferguson for his royalty amounting to just about all the money there was left over paying operating expenses. We were amazed that we were making so much gasoline at the plant and selling so little.

"A check up of the gasoline in our accumulator tank showed it had a gravity of about 106 degrees Be. or higher. The casinghead gas was rich in propane and butane and we were producing a gasoline which contained a very large percentage of liquified petroleum gas.

"That was a general thing in those days. Natural gasoline was loaded in drums at the plant and on the way to market the agitation of the liquid and heat of the sun caused a great deal of pressure to develop. When the bung was removed now and then the entire contents of a drum would boil out and be lost. Sometimes the head would blow out. Most of the manufacturers got the habit of loading their drums just about milking time on the farm and arranged to get their loads to the market before the day got warm.

"Even the Atlantic Refining Co. was not wise at that time to losses in handling natural gasoline. At the dock drums would be gauged and afterwards dumped into a tank. Probably the loss was 30 per cent or greater in getting the stuff from drum to tank but the Atlantic paid on the drum gauges.

Bought Naphtha

"To solve our loss problem we went to Pittsburgh and signed a contract with John Knox, sales manager of the Atlantic, for a supply of naphtha to be delivered over a year's time. We were to take a minimum of a half million gallons and had the option of taking as much as a million and a half gallons. The price was 6½ cents flat.

"Then we went out to St. Louis and made a contract with Clem Lessig to deliver him blended gasoline. Clem is still selling gasoline in St. Louis as the Automobile Gasoline Co. We agreed to furnish him a million gallons of 72 and 76 gravity gasoline during the following year. In those days a gasoline that light for automobiles was

common. It was mighty uncommon to find any gasoline below about 64 gravity.

"At our plant we were using two stages of compression. The first stage was 50 pounds per square inch and the second stage was 250 pounds per square inch. I rigged up a third stage and compressed some gas to 400 pounds, running the gas into a separate stream.

"I rigged up a flat cooling coil and piled on this a ton of ice. To get better cooling I would take a bucket of frosty stock and pour it on the ice. It would boil away quickly on the ice and give me a very low temperature in the coils. In that way we prepared a liquified petroleum gas which would vaporize completely at atmospheric pressure at a temperature as low as 40 degrees below zero F.

Attempts for Welding

"Samples of this product, which was largely liquid propane, were put in oxygen bottles and I set about finding a commercial use for the material. I took out a product and process patent on the material and its method of manufacture.

"My first effort was to attempt to use the stuff in place of acetylene for welding. Up at Cleveland I tried to weld two pieces of steel together. I made the weld all right but when I struck the finished piece with a hammer it always broke at the joint. The practical man at the Davis-Browning plant at Cleveland told me of failures with other gases than acetylene so I went to a professor at Pittsburgh who, without reference to books or any trials at actual welding, compared the combustion of acetylene and propane and told me that he was convinced that petroleum gas would not do for welding purposes.

"We formed a syndicate to experiment with this product and to develop it for heating and lighting purposes. We worked out methods for its use in cottages and larger buildings. We found a single bottle would serve a cottage a month before it had to be replaced.

"But it took a bottle weighing 110 pounds to hold less than 40 pounds of useful product and the cost of having better designed bottles was prohibitive. We had to guarantee a $90,000 order for bottles in order to get production started. Finally we sold the syndicate to some Chicago promoters.

"At the laboratory at Grove City, Pa., built by Bessemer to study natural gasoline manufacturing methods we worked out methods of testing gas for gasoline content. We made a tremendous number of tests there in the early days of the industry. Samples of gas came in from all parts of the oil fields. Frank Henderson, president of the Henderson Co., who built one of the first plants in the Mid-Continent field at Alluwe, sent a sample of the gas there to Grove City before he built his plant. As many as 50 samples used to come in in a single day.

"An early gas testing error on the part of a chemist of the Bureau of Mines caused us a great deal of difficulty in the early part of our tests. This chemist had arrived at the conclusion that there was a percentage of free hydrogen in natural gas. In our tests for hydrogen we could never get comparable results for the same sample of gas and finally came to the conclusion that there was no free hydrogen present.

"We tested by absorption with a mineral seal oil we got from the Atlantic Refining Co. and made a quantitative analysis of the gas by combustion and measurement.

"There was a good deal of skepticism among the practical men that we could actually test gas with accurate results. I remember one man who tried us out by bringing a sample of dry gas and a sample of casinghead gas which he was treating at a plant. He knew in advance how much gasoline the casinghead gas would yield.

"He refused to tell us where the samples were from and remarked that he was going to check up on us. We told him about an hour later that one gas was dry and gave him within about .3 or .4 of a gallon of the gasoline recovery he was getting from the casinghead gas.

"We made a charge of $5 per sample for tests at the plant but credited the fee to the account of any one who later bought equipment from Bessemer. A commercial laboratory at Pittsburgh got the idea that we were coining money with the tests and tried to get us to announce our methods but we refused."

Oil Absorption

The Hope Natural Gas Co., a subsidiary of the Standard Oil Co. of New Jersey, began development of the oil absorption process in the United States by experiment as early as 1906 under the direction of George Saybolt. In 1911 a patent on the process was granted by the U. S. patent office.

The Saybolt patent covered operating pressures of over 30 pounds per square inch. Builders of plants were threatened with suit and in 1917 a test case was filed against the Oklahoma Natural Gas Co.

While the Saybolt patents were declared invalid by the U. S. Courts and while oil absorption is now carried on almost entirely at around 30 pounds pressure rather than at high pressures, the Hope Natural Gas Co. is to be given credit for developing the process in the United States.

Early absorbers built were far from being as efficient as the modern baffled type. One early absorber used by the Hope company was designed to permit gas to bubble up through a body of mineral seal oil. This method did not give an intimate mixture and it was followed by a method of spraying mineral seal oil in a chamber with a stream of incoming rich gas.

The modern absorber is a vertical tower into which mineral seal oil is charged at the top and rich gas at a point near the bottom. The tower is filled with baffling material of various kinds designed to prevent channeling and to give the greatest possible contact between gas and oil. Moving counter current with the mineral seal oil the rich gas meets partially enriched mineral seal oil while at the top of the tower the lean gas is contacted with incoming denuded oil.

Absorber Development

A new absorber developed by the Newton Process Co. has recently been put on the market which claims to foam mineral seal oil in the tower and give a highly intimate mixture with resulting high percentage of absorption compared with the volume of oil circulated. The Feld scrubber is another new type of absorber which has been taken from the coal gas industry for use in natural gasoline plants. In this absorber mineral seal oil is mechanically sprayed by centrifugal force against the gas. It is installed at one Mid-Continent plant and in other parts of the country.

The National Products Co. built an absorption plant at Cleveland, Okla., as early as 1913 which operated on pressures below 10 pounds per square inch. Frank Peterson is credited with suggesting the present efficient pressure of 30 pounds per square inch in 1918, a year after the Saybolt patent suit was filed. The Phillips Petroleum Co. of Bartlesville, built a 30 pound plant at that time in the Osage nation.

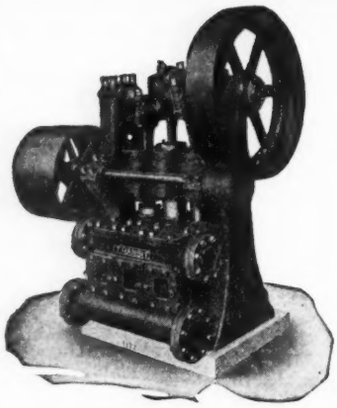
Even before the Saybolt litigation was settled in 1921, there was a tremendous swing from compression plant operation to oil absorption. At that time oil absorption plants were producing a much more stable product than compression plants and absorption gasoline was bringing a premium of from a quarter of a cent to a full cent per gallon.

Hundreds of compression plants were changed over to absorption and small plants were consolidated into large ones for more efficient operation.

Discussing the change from compression to absorption plants Frank Peterson pointed out that, "Having changed their plants over to make a more stable product, manufacturers promptly began to improve their oil absorption plants until they are now back at the point where they can produce just as wild a product with oil absorption as they formerly could with their old compression plants.

"Fractionating columns were added to steam, or fire stills and vapors were collected from loading racks and storage tanks and recompressed to minimize losses. In 1910 at the Follonsby gasoline plant we made 106 gravity gasoline and we have some of the same stuff in our tanks here today."

The biggest advance made in compressor equipment for gasoline plants was the invention of the plate valve. The old type valve which might be classified as



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a poppet type valve was always giving trouble but except for grinding off corrosion now and then operators have very little trouble with plate valves.

One of the most outstanding events in the industry in recent years has been the development of the stabilizer. The stabilizer is essentially a device for making a clean separation between elements in natural gas which can be kept in a liquid form at atmospheric pressure and those which can only be kept as a liquid by pressure or extremely low temperature.

As a result of the installation of various types of stabilizers the industry has been able to produce high gravity gasolines with a high recovery which may be handled, stored and shipped with smaller losses. The Carbide and Carbon Chemicals Corp. was the first to announce a stabilizer for the natural gasoline industry but there are now many types in use. During the past summer litigation has been begun on stabilizer patents which bids fair to rival the Saybolt litigation in importance and interest to the industry.

Experimentation during war time on absorbents for poisonous war gases led George Burrell and G. G. Oberfell to develop the charcoal process for oil absorption. The charcoal used is a special highly absorbent material called activated charcoal such as was used in gas masks during the war.

The charcoal process in brief consists of passing rich gas through charcoal and later driving the absorbed gasoline off with steam. Until the past few months it has been considered practical only on lean gas but Skelly Oil Co. at its Stroud gasoline plant has been operating successfully on 2½ gallon gas and producing 2500 gallons of gasoline per day from equipment designed to produce 750 gallons per day from lean tail gas.

Refrigeration

Refrigeration as an aid to condensation and for water conservation has received a great deal of study by gasoline manufacturers during the development of the industry. The ice cooled coils aided by evaporation of volatile gasoline in the early experiments of Mr. Peterson were previously described. A little later Mr. Peterson worked out a method of expanding vapors in a jacketed container to get cooling benefits.

Refrigeration was tried at compression plants where cold brine was sprayed down through compressed gas but this plan has not been followed extensively. At some oil absorption plants where there are difficulties with a water supply refrigeration is being resorted to successfully to cool mineral seal oil. The various stabilizers make generous use of the refrigeration resulting from expansion of gases to help effect a closely cut product.

Because of the fact that nearly all plants have difficulty with their water supply the past year or so has seen the installation at many plants of closed water systems with evaporators and water softening plants. The water problem is one which must yet be solved at most plants, however.

A Backward Look at the Days When the Oil Industry Was Young

By Ira L. Neely,
Vice-President, Ohio Public Service Co.

PEOPLE living in the present age have learned to accept new ideas, improvements and inventions indifferently, little thinking or caring how much effort is being made every day for their comfort and convenience.

We accept without comment the cheap and plenteous fuel for our motor cars, fuel oil for our industries and the innumerable articles found on our drug store shelves—including high-grade perfumes, aniline dyes, and cosmetics, all by-products of the crude oil refineries. Then we have the most wonderful fuel man has discovered — natural gas—all produced from the bowels of the earth by the most ordinary, crude, but highly efficient, machinery.

The men engaged in the work of development are above the average type but they do not usually belong to the highly educated classes, and of technical educational training they have none. Indeed, they are lucky if they have seen the outside of a college, never dreaming, much less caring what the inside may look like.

These men with the trend of the times, have changed. No longer is the typical oil man considered a "tight wad" if he has a tidy sum in the bank or an investment in some reputable stock, preferably the stock of the company from whom he gets his daily wage.

Many of the younger generation in the oil and gas fields do not know how the many useful and apparently indispensable appliances and ideas have been developed as the work has gone from field to field and state to state.

The equipment used by the men who bounce the ponderous drill on the hard rock is no more the development of highly trained technical engineers than the workmen are products of the colleges.

Unchanged in Principle

There probably has never been an industry in which so much has been accomplished, so much money made and lost, that has been so dependent on so crude a type of mechanism, as the motive power and standard rigs in use in the oil country today. In the replica of Colonel Drake's rig, used on the first oil well drilled in the world, and recently exhibited near Oil City, there can be seen all of the essentials of the standard rig of today. The principle is the same, simply the old hand operated churn drill used for ages to drill small holes in hard rocks for mechanical purposes, with a long rope made fast to the end of a walking-beam, the lower end attached to the drill, suitable machinery to impart a rocking motion to the beam, a derrick and a bull wheel to hoist the drill from the bottom of the well and then a friction-drive sand reel to remove the broken rock and mud from the well.

The principle is the same, but there have been many, many details improved, always preserving the crude simplicity of the rig and tools. It is a far cry from the old Woodbury and Booth and Faber steam engines used in the early sixties with 6-inch bore and 4-foot stroke, a hickory pitman, 8 feet long, 6 inches square in the center, tapering sharply to each end, where bolted iron straps held the brass bearings, to the modern 12 x 12 or 16 x 16 high-speed capable and efficient steam engine of today.

Ira L. Neely

Mr. Neely, of Wooster, Ohio, is the general manager of the natural gas division of the Ohio Public Service Co., whose field work is carried on under the name Empire Gas & Fuel Co. He is not so "veteran" as many men now in the oil and gas industry, but he began drilling early enough that he has witnessed the many changes that have been made in field practices and has, in fact, been responsible for some of them. His article tells of some of the methods in vogue in the early times.—Editor.

Due to the slow speed of these older type engines it was not unusual practice to attach the wrist pin, now used in the crank of the band wheel shaft to one of the spokes of the fly wheel of the engine. The walking beam would then make the same number of revolutions per minute as the engine. Later the belted band wheel came into use together with shorter stroke, higher speed engines. Some of these older band wheel outfits had a slotted crank instead of four or five holes in the crank to receive the wrist pin as at present; the stroke of the beam could be changed by adjusting the wrist pin in the slot, very convenient indeed, but how long would such an arrangement support the modern drilling strains?

Early Forms of Power

Antedating the steam engine various other types of power was used to drill wells; "kicking" them down was popular in the late sixties. A heavy spring pole approximately 30 feet in length was securely anchored to sill and supported near the center in a forked post, the cable attached to the tools in the well was "snubbed" around two pins in the free end of the spring pole, a platform suspended from the pole afforded standing room for the motion power, consisting of two men who imparted the drilling motion to the spring pole by "pumping" up and down as children do on the old rope swing.

Such an apparatus was used in the early sixties to start a wildcat on the Clarion River in Clarion County, Pa. After some inconsiderable depth had been gained and the man-power engines were becoming weary, horse-power was substituted, only to give way to an overshot water wheel actuated by water brought a half mile down from the head water of a stream through a hemlock flume. Later a very new and up to date long-stroked "Faber" was installed. Stimulated by the new motive power a progress of four or five feet per day was made. After some two or three years desultory work with the modern power, a gas sand was reached that blew water, stones and mud over a circumference of half a mile, as the well contained no casing and could not be capped or controlled. A long drawn out battle ensued between the water and

the gas, inevitably the water was the victor, although the battle raged for ten years or more.

An idea of the size of the tools used in drilling this well may be gained from the statement that when the pin was "jumped," which happened frequently in the early days of oil country development, two men would pick up the stem and carry it about 300 yards to a blacksmith shop, climbing, as they went, a hill about 300 feet high.

Early Water Shut-off

In the late sixties, some brilliant mind conceived the idea of using casing to seal the fresh water out of the well while drilling, and aid in the explorations and examination of the sands while "drilling in." The first casing was about 4 inches in diameter and was made of copper or cast iron and the 2 inch tubing, later used in pumping the oil from the bottom of wells, was copper.

In the early days in the absence of casing to shut off the water from the oil sands while pumping, "seed bags" were employed to hold the volume of water from the oil sands. This device consisted of a mule skin tube two or three feet long, the outside center diameter was as large as the drill hole, and the ends were tapered to fit snugly to the 2 inch tubing. The top and bottom ends were wrapped securely with wire to the tubing, the top end was slotted in several places, and the main body of the leather bag was filled with flax seed. The seed bag was then lowered in the hole on the tubing and placed a short distance above the oil sand and below the water sand. The water was then exhausted from below the seed bag by pumping, the leather bag, distended by the swelling seed, caught the water pressure inside through the perforation in the top, forming a cup which effectually held the surface water from the oil sand. From such a lowly origin was our modern efficient rubber packer developed.

The Nitroglycerin Fight

In those old palmy days wells were shot with nitroglycerin as is the cutom today. Roberts secured a patent on using water as a tamping on top of the shot, as all the wells contained water until shut off by the seed bag. As the uncased wells were full of water it was impossible to explode the glycerin without the water tamping.

Roberts had a monopoly of the business, and charged enormous prices per quart for placing shots in wells.

At the same time glycerin could be bought in the open market for less than one-tenth the amount per quart charged by Roberts. An industry akin to our modern bootlegging sprang up and was called "moonlighting."

The shots used in those days were "enormous" affairs. The more daring operators were criticized for using a ten-quart shot. When such an operator decided to shoot a well, a moonlighter was engaged to come to the well in the wee small hours and place five or eight quarts in suitable tin shells in the bottom of the well. Then the producer bought a two quart shot from Roberts to be exploded the next day. The moonlight shot was detonated by Roberts' shot, cleverly evading Robert's patent.

Roberts probably made more than a million dollars from his monopoly, but litigation over validity of his patents depleted his finances, and the lengendary history of the oil country records that he died penniless.

In the last decade, many labor saving, dividend paying improvements have been introduced, larger, heavier drilling tools, bigger bailers, more powerful engines, and the substitution of wire cables for manila rope have all contributed their part towards drilling deep wells deeper, and shallow wells faster and cheaper.

The latest contribution from the engineers to the art of drilling was the development of special gas or gasoline engines, that rapidly took the place of the old reliable steam engines. There are many types in use, covering the various cycles, number of cylinders and combinations possible to be built in this prime mover. Each manufacturer—as in the days of the horseless carriage—has his own ideas of a standardized engine.

A standard type will be evolved and the steam engine relegated to the pasture with old Dobbin.

New Style of Pumping Jack Base Is Made by Welding

Until recently, the Prairie Oil & Gas Co. has been setting all its pumping jacks on the usual concrete foundations. Excavation, pouring and setting of the concrete for a single base required two days' work by four men. Then, after the jack had been set up it was frequently found that a few days' operation cracked the foundation.

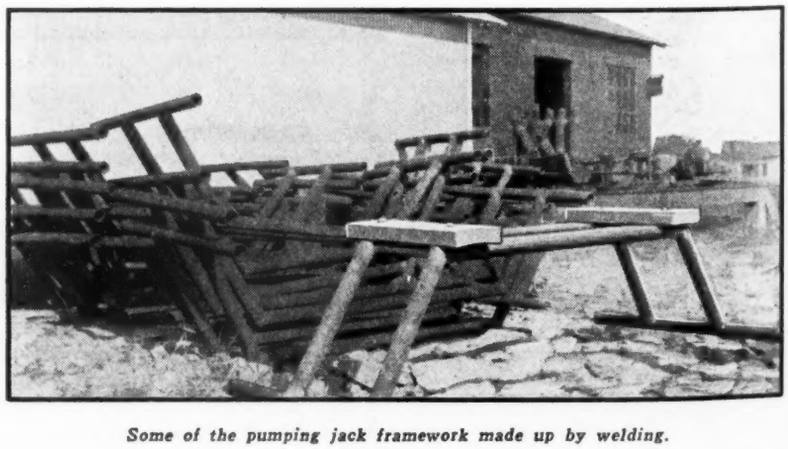
This company has been doing a great deal of oxy-acetylene welding, and knowing the strength and utility of welded joints, the problem of evolving a new type of pumping jack foundation was turned over to the welding department for solution. In a fairly short time the standards illustrated were designed, adopted, and the new foundations fabricated.

This new type of foundation is being oxwelded from used 3-inch and 4-inch steel pipe. In addition to being superior to the old foundation the cost of materials has been reduced to practically nothing, the construction time from two days to five hours, and the necessary labor from four men to two men, a welder and his helper.

The pipe used for the framework is first carefully inspected, and if found to be badly pitted, is reconditioned by oxy-welding. It is then cut to fit with the cutting blowpipe. The two horizontal supports are next connected together at each end by pieces of pipe of smaller diameter.

The ends of the horizontal are mitered with the cutting blowpipe and oxwelded to the ends of the supports, or legs, which have likewise been cut to the same angle. A thrust bar, or foot, is then welded across the ends of each pair of legs.

To complete the job bearing blocks of 3-inch or 4-inch timber are bolted across the ends of the horizontals, and a coat of good preservative paint is applied. The bases are imbedded in the ground "feet foremost" the tops of the timbers being flush with the surface. The ground is then firmly tamped down.



Some of the pumping jack framework made up by welding.

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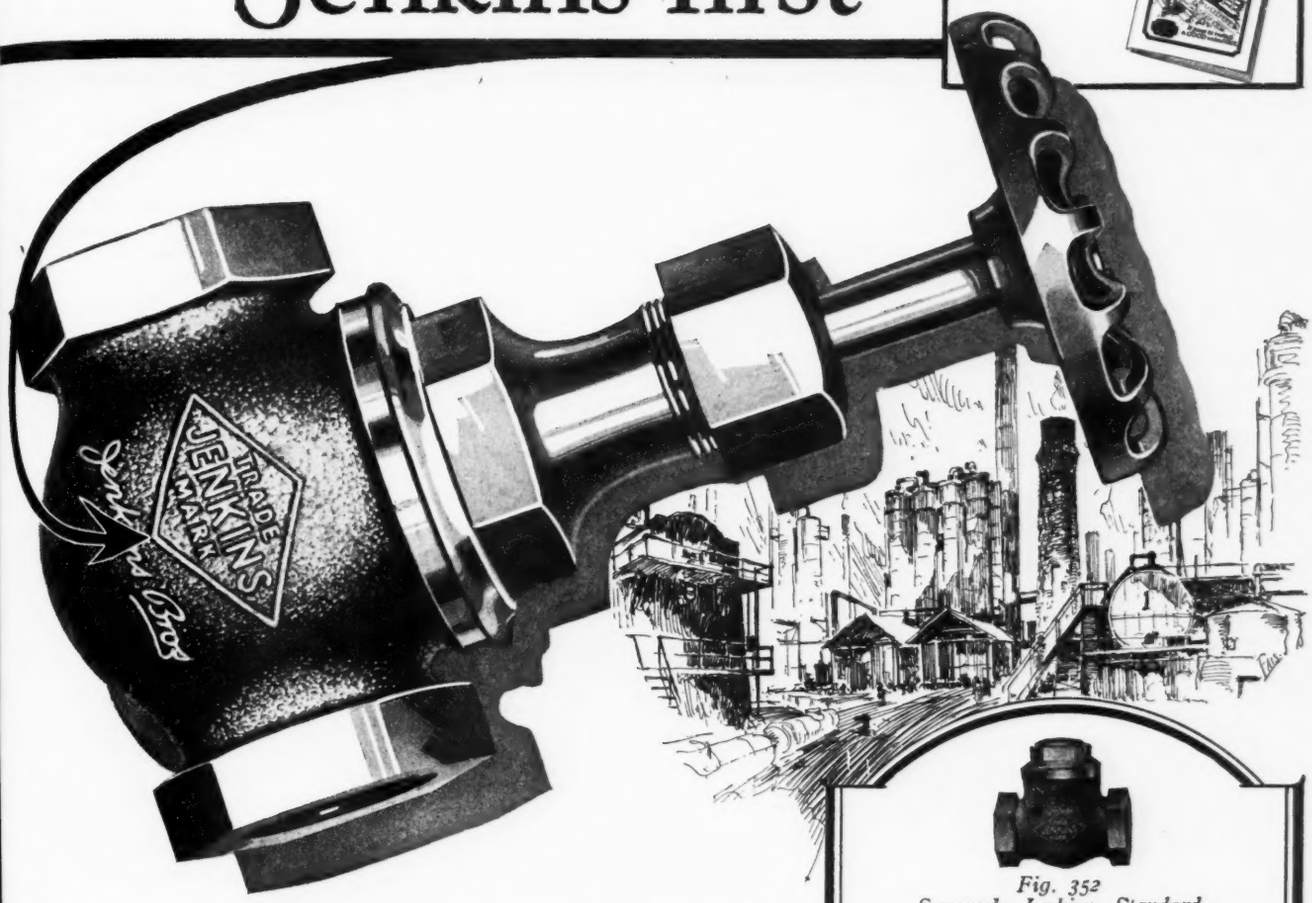

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Fig. 352
Screwed, Jenkins Standard Bronze Swing Check Valve.

Fig. 108
Screwed, Jenkins Standard Bronze Angle Valve.

Fig. 370
Screwed, Jenkins Standard Bronze Gate Valve.

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Anyone Can Have Trouble in Drilling— The Expert Knows How to Get Out

By Lawrence E. Smith
N. P. N. Staff Writer

CLEVELAND, Sept. 28

THE scouts, who constitute the reportorial staff for oil companies, turn in some peculiar expressions —peculiar to the man not familiar with oil field practices. The most peculiar of them have to do with various kinds of trouble which the driller has gotten into.

These expressions and terms would make up a long list. Adequate explanations would make the list many times longer, for such a phrase as "milling a pin" is perfectly good English to the driller or any man versed in field development, but its interpretation in detail would fill a column or so of this journal.

Back of these short phrases is an important branch of the oil industry; that of manufacturing tools to correct the numerous kinds of grief that may come upon an oil well in the process of drilling. In any sizeable warehouse of an oil company or of the manufacturer himself there may be seen dozens of strange — often weird-looking — devices which are available to send down into the hole to take hold of something that has been lost.

There are a number of fishing tools which are standard; they have been tried and found successful in hundreds of cases. Upon these general types there have been built a host of modifications and every little while a new tool entirely is born of the experiences with other types. Then the driller who works with these tools will ring in changes of his own. Perhaps he may take some manufactured article to the shop and have it altered to suit a particular job or he may make up a new one all his own. Frequently the modified tool serves for only one job and the same conditions may not be encountered again by that driller.

This is one phase of drilling that has changed greatly since men first began to drill for oil. Rather, it has been built up within the oil industry. Few fishing tools were available when the cable tool method was brought over from other well drilling practice and made to serve the oil industry. Early day operators tell us that a really difficult fishing job then called for abandoning the hole and starting a new one. The percentage of holes abandoned nowadays because of unconquerable fishing jobs is surprisingly low.

Drilling is, of course, safeguarded more now than it was then. Better equipment, made to withstand the hard usage it is given, is of first importance. Modern casing practice tends to prevent cave-ins which would bury the tools. Fewer parted cables, because they are made to handle the load. Better tool joints and fewer "jumped" pins. More care in making up strings of casing and less danger of losing a few joints in the hole. Greater safety provided by the present day elevators and casing spiders with less chance of dropping the entire string. And, when something does go wrong, fishing tools that get the driller out of trouble in short time, unless the job is particularly bad. The spiral stem has greatly reduced the chances of drilling a crooked hole, always a fruitful source of fishing jobs.

The present generation of drillers is more expert all around simply because they have the experience of the past to draw upon. The pioneer oil well driller was creating the methods and blazing the trail.

Not that the present day driller has everything cut and turned for him. The efficient driller of today is the man who has a big bump of inventiveness and is quick-witted along with it. The same qualities that make for drilling efficiency today were the ones possessed by their predecessors.

No rules can be laid down for handling fishing jobs successfully. No expert oil well fisherman can tell you how he achieves success any more than Paderewski can give you a brief description of the way he plays the piano. Not every driller is an expert fisherman any more than every pianist is a master. The good fishermen are known throughout the territories where they work. Many of them have been advanced by reason of their expertness with tools, to superintendent's jobs and some are drillers. It is by no means unusual for a good fisherman employed by one company to lend a hand to other companies that have gotten into bad trouble.

The Real Trouble

In Wyoming, one deep well had a fishing job that lasted about four years. That was a record of some kind or other. Its doleful tale lends point to the saying of one of the expert fishermen of the eastern fields:

"It isn't the thing that you first start fishing for that causes the trouble; it is the tools you lose getting the first one out."

His theory is that anything that is dropped into the hole has room to come out the same way it went in. It is by sending down the wrong fishing tool or losing one that is sent down that wedges the original object in such position that no hold can be taken that will bring it out.

It is a ticklish and delicate job to feel around cautiously in a hole 3000 feet deep to catch hold of an object that has severed its connection with everything on the top of the ground. Yet, there are fishermen who seem to proceed with as much certainty as though they had looked into the hole and seen the exact position of the tool which was lost.

In a sense, they can see it. After running their impression block, which is a block of wood coated with wax or soap on one side, and getting a good imprint of the lost tools thereon, they can tell just about the attitude of the lost tool, whether it is standing upright or is tilted to one side. Knowledge of the position of the tool means everything to the successful outcome of a fishing job.

Now, the number of articles which can be lost in a hole is not so great. Generally speaking, only the articles which are supposed to go into the hole are dropped. Occasionally someone will drop a wrench or other piece of metal whose place is the derrick floor and not in the hole, but such fishing jobs are comparatively rare.

Lost tools constitute a large part of fishing jobs. These come generally from parted cables or "jumped" pins, or the giving way of tool joints. Sometimes an expanding cutter or lug from an underreamer comes loose and must either be recovered or drilled up—battered into fragments that will not hinder further drilling. Broken jars are also fruitful sources of trouble.

How Tools Are Recovered

The principle employed in getting out lost tools is primarily that of slipping a tool over them, engaging them by friction or by toothed slips. Other tools frequently are required to straighten the lost ones up so the socket tool will descend and engage the object fished for. Once a firm hold is obtained, considerable skill is required to keep that hold. Special fishing jars, with a longer stroke than drilling jars, are used above the fishing tool and by successive jerks upward the lost tools are freed. The job is simpler, of course, if the tools have not been dropped by reason of being stuck in the hole.

The number of devices for recovering lost drilling tools is great, but they generally are built around the principle of a hollow tool, or socket to be lowered around the lost tool.

There is a variety in rasps on the

market which are used to file off battered tools so that the fishing device will slip over them. The principle is the same as that of filing off a piece of metal to the required size and shape.

Sometimes the pin of the tool joint breaks and the lost tool is so large that there is not room to slip a socket between it and the wall of the hole. In such cases the method frequently employed is that of cutting a new pin so that a socket will take hold. This is something of a job. A milling device, or pin cutter, is lowered to the lost tool on a string of tubing and a milling jack on the derrick floor, attached to the tubing, is rotated by rope from the bull wheel shaft.

Another method of clearing the lost tools so that they may be picked up by the usual means is to drill past them, clearing them of sediment and rock, enlarging the diameter of the hole around the tools until they are comparatively free.

All these methods are usually jobs for men who are unusually skilled. Their source of information as to what progress they are making at the point of trouble is the "feel" of the cable and only long experience will enable them to interpret correctly the various jolts and bumps they receive. It is certainly no job for a beginner.

When tools are dropped because of parted cable, cutters or knives are sometimes brought into service to cut the rope or wire line off the tools. A rope grab or spear is first run and the attempt is made to get a good grip on the cable and pull the tools out. If this fails the knife is used to cut off the cable at the tools, following which operation the cable is pulled out of the hole. If the cable is snarled and wadded into the hole so that it will not come clear, it is cut into fragments and picked out a piece at a time with some form of grab.

Fishing for Casing

Casing is sometimes dropped in the hole, although with the greater care now used in making up the strings, the use of the present day spider for supporting it at the surface and the manufacturing skill now displayed in making casing, the trouble from this source is much less than it was formerly. Recovery of dropped casing generally takes the opposite form to that of recovering lost tools. Spears which go inside the pipe and engage it by friction or by milled teeth are employed. Frequently casing is "frozen" in the hole and must be jarred loose, either by upward jerks with jars and spear, or by reversing the process and driving it downward. Sometimes rippers are brought into play to cut up the part that is stuck. If there is sufficient room between the casing and the wall of the hole to drop a weight and line, the point of trouble can be fairly well ascertained.

Good fishermen are skilled in telling by the vibration when running a spear about where the "freeze" is. Casing cutters are employed to shear off that

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part of the pipe which is not stuck against the walls of the hole and the free part can be saved. The casing cutter is a tool which is rotated on a string of tubing, similar to the process of milling a pin. The "frozen" part of the casing can be ripped up or the hole can be reduced and a new string of casing, next smaller in size than that which is left behind, run in.

Now and then, due to extreme pressure, casing collapses and if the tools happen to be in the hole below the point of collapse, it is then a nice job. There are tools called swages which are run into the casing and driven down by strokes of the jars, bringing the casing back to its normal shape. Sometimes it is necessary to start with a small sized swage and use larger and larger ones, as each is forced through, until the pipe is again rounded.

Bailers or sand pumps are frequently dropped because of parted line. If the bail is not broken, the bailer can usually be picked up with a form of grab. Sometimes a spear must be run inside the bailer.

Electric Fishing Tools

Many small pieces of metal have been brought out of holes by the use of an electric magnet, a development of recent years. The writer has been asked several times whether this tool is no longer on the market, as the manufacturers have not pushed its introduction as vigorously as they did when it was first brought out. It is still made and there are a number of them in use over the country, but it has not been advertised as much as formerly because production has been limited. Its life is long, involving little replacement, and one of them will serve a considerable district—even several companies use the same one.

Dropped tubing is not a drilling problem, but is a frequent source of trouble in developed fields. The increasing use of the modern tubing catcher is getting the production man away from bad jobs of this sort.

With all the help that has been given by the manufacturers of fishing tools—and their art has no limitations—the human factor is still highly important in fishing. It is of no use to equip a man with fine tools unless he knows how to get the most out of them. In consequence, the driller who is skilled at keeping out of trouble and at getting out when accidents do occur, as they are certain to even with the exercise of the greatest caution, is a jewel beyond appraisal. Most drillers are good fishermen, but some are better and there are a few whose skill cannot be found in every field. In recent years many of these specialists have been employed by manufacturers of fishing tools and their services are at the command of the operating company that is in deep trouble.

Some manufacturers maintain a rental service on fishing tools, reducing to the oil company the investment required to carry a complete line of tools, many of which are not often needed. Oil companies generally carry in their warehouses a stock of the more common forms of fishing tools, particularly in localities where there is no rental service afforded.

The remote wildcat generally includes as essential a number of fishing tools, for trouble may bob up any minute. Companies undertaking the testing of territory far away from supply stores and especially where transportation is slow, always anticipate fishing jobs and include in the shipment of material tools for all forms of drilling disaster, just as a traveler to an unsettled country will reason that he may contract various diseases and forms of illness and carry with him the remedies.

Keeping Safety Bulletins Neat Pays Off in Results

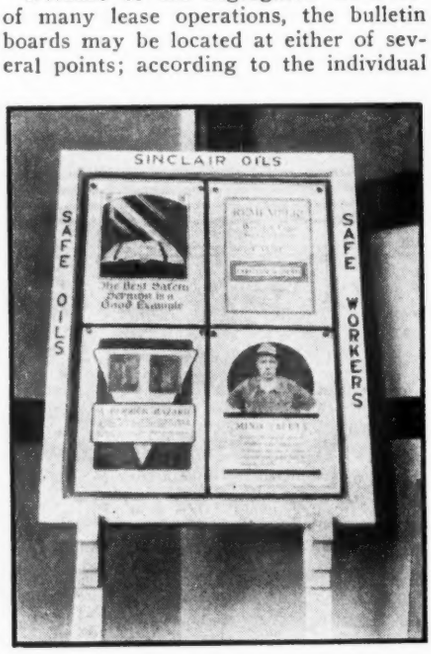
HOUSTON, Sept. 28

MEN in the field look eagerly to the day when Safety bulletins will be posted, according to Henry W. Boggess, head of personnel work for the Sinclair Companies and chairman of the Petroleum Safety Council of the Mid-Continent Oil & Gas Association.

After using bulletin boards for nearly a year, Mr. Boggess says in a personal communication that "attractive postings bring about the desired results" in the Safety operations of the Sinclair Companies.

The accompanying illustration shows the method used by the Sinclair Companies to display either one large or four small bulletins. These bulletins are located at pipe line pumping stations, at refineries and in the producing fields of the Mid-Continent.

Because of the segregated character of many lease operations, the bulletin boards may be located at either of several points; according to the individual conditions under which men congregate for the day's work. In the producing division, therefore, the bulletins may be either at field offices and warehouses or at field tool houses.



Weather-proof board of type used by Sinclair Companies for safety posters.

Reference to the accompanying illustration shows the Sinclair idea is not only to make the bulletin boards attractive but to keep them so. The posting places are weather-proof, glassed-in and puttied, and they specifically get away from the use of the term "bulletin board" in the practice attending their use.

The words "Sinclair Oils" at the top, "Safe Oils" and "Safe Workers" down the panels, are deliberately used in the making up of these posting places for the purpose of creating a psychological effect. Bulletins are changed regularly every 15 days at the 2000, or more, posing places and one man is held directly responsible at each point for these changes.

"Remember Wooden Legs are Not Inherited; Accidents Cause Them," makes an impression upon the worker because he gets a grin out of the first part of the sermon-sentence and fails to sense any "preaching" in the warning that follows.

The worker gets a thought out of the suggestion to "Mind Safety—It takes the Biggest Part of a Lifetime to Become a Good Workman, but One Careless Movement Can Make Him a Helpless Cripple."

These and other carefully worded sermon-sentences are calculated, according to Mr. Boggess, to bring about the Safe Thinking (and, consequently, Safe Acting). This constitutes the mental attitude described by Safety men as the greatest asset to be obtained by the movement.

One of the early bulletins conceived and posted by Mr. Boggess contained this thought:

"The only Safety devices or appliances this company cannot furnish for your protection are 'Eyes That See and Brains That Think,' you have them, use them."

Automatic Feed and Power Control are Provided for Rotary Drilling

By W. H. Jeffery,
President, Eastern Torpedo of Ohio Company

TWO devices which recently have been introduced will, if they become generally used, revolutionize rotary drilling. The old principle of differential gears has been applied in a new way automatically to regulate the rate of feed of the bit and to relieve the strain, or torque, on the drill pipe when drilling hard material or when the bit meets resistance. While both the devices have but just emerged from the experimental stage, the author believes they are based upon sound mechanical principles and that they represent the greatest advance in the art of rotary drilling since the rotary came into use for oil well drilling.

The first of these appliances to make its appearance was the Hild differential drive (Oil Well Supply Co. and Westinghouse Electric & Mfg. Co.) using electric motors, and the second is the Ideal-Halliburton Drilling Control (Union Tool Co.) using the standard oil field steam engine.

F. W. Hild, inventor of the device that bears his name, has written an article descriptive of it from which the following extracts have been taken:

"For the first time in the history of oil well drilling and perhaps in earth boring, the advance of the drilling tool for entire depth of the hole has been accomplished automatically.

"In the Torrance field of California, the Chanslor - Canfield - Midway Oil Co. drilled two holes, one 3702 feet deep, the other 3735 feet deep, by means of the automatic feed of the "Oilwell" Hild Differential Drive. In doing so, the bit passed through surface loam, soft and hard sands, boulders, hard gravel, shales, conglomerate clays and hard rocks.

"In the Gulf Coastal field near Hull, Texas, the Gulf Production Co. drilled a well over 3200 feet deep in fast time and at very low cost, utilizing the automatic feed throughout.

What is Gained

"The following advantages were revealed by the automatic feed:

"1.—Straight hole; the importance of this is far reaching.

"2.—More hole per bit.

"3.—Safer operation and protection of drill pipe.

"4.—Surer setting of and less wear on casing during drilling.

"5.—Better operation of disc bits.

"6.—Successful use of smaller slush pumps.

"7.—Better progress of bit when drilling.

"8.—Less power cost for drilling.

"9.—Less wear and better condition of the entire drilling plant.

This article is part of a chapter from Mr. Jeffery's book, "Deep Well Drilling," now on the press and soon to be distributed. The book follows that of the same title, published in 1921, but completely rewritten and containing much new material. The accompanying portion tells of two devices for rotary drilling, both of which are recent developments. This chapter is published by permission of the author.
—Editor.

"10.—Easier for the drillers; enables them to supervise.

"The successful advance of a rotating cutting tool, whether by hand or automatically, through the different formations encountered in earth boring requires:

"(a) Control of the pressure exerted by the cutting tool against the material; or

"(b) Control of the torque of the boring stem; or

"(c) Both (a) and (b).

"The torque (b) is the result of the pressure (a) therefore the control is generally sought by regulating the feed of the cutting tool. Thus we have mechanical feeds employing the screw, the worm gear or the fluid piston such as found in mining core drills. For the oil fields, we have the friction brake-gravity feed which until now has been the standard method of controlling the pressure or weight on the drill bit in rotary drilling.

"All of these feeds are hand operated and only utilize direct torque regulation for secondary or supplementary control. Usually such secondary torque regulation is a strength limit member and therefore effective for only one value. This may be in the form of a shear pin, a friction clutch, a chain link or a low powered engine or motor.

"In rotary drilling, especially when using new drill pipe, the steam engine will often stop when the bit becomes wedged or otherwise held stationary. Thus the pull of the engine at a certain steam pressure is less than the torsional strength of the drill pipe. When the drill pipe has become crystallized or is smaller, then this load limit of the engine no longer can be relied upon. The drill pipe then becomes the strength limit member; but this means fishing jobs.

Sensitive Regulation

"In the automatic feed of the Hild differential drive, both the pressure or weight on the cutting tool and the torsional load on the drill stem are primary elements of the control. Each is of equal importance and value; both function since the regulation of this drive is highly sensitive, accurate and very rapid as proved in actual practice.

"Briefly the drive consists of a differential reduction gear and two motors assembled as a unit which takes the place of the engine and boilers or the single motor and reduction gear. Ordinary controllers with grid resistances, a standard indicating wattmeter and an ammeter supplement the main unit, the latter being chain connected to the customary draw works.

"The driller's duties are exactly the same as heretofore, except during drilling. Then he throws the brake lever of the hoist wide open, and while the table is rotating and the drill stem moves steadily downward, the driller is free to supervise other things, such as the mud circulation, transportation matters, repairs, etc.

"The simplicity of the apparatus and the new method may be judged from the fact that during the first field trial, and only a few days after spudding in, several drillers from other jobs were detailed to operate the rig and they did it successfully for several nights unknown to the engineers of the manufacturers. Such instructions as these drillers received were passed on to them by other members of the crews.

Principle Employed

"The principle of the control and automatic feed is as follows:

"Figure 192 shows in simple diagram the essential members of the system.

"The two bevel gears (a) and (c) of the differential gear set are driven by motors, A and C respectively. The differential member B is connected to drive drum D.

"D is the hoist drum of the rotary draw works and is connected by wire rope to the drill pipe. Motor A drives the rotary table and thereby rotates the drill pipe.

"Consider the first differential gear set alone. When (a) and (c) revolve in the same direction at equal speed B revolves in the same direction at the same speed.

"This is the condition when the drum D is operated simply as a hoist.

"When the speed of either (a) or (c) is changed, then B rotates at the average of the two speeds; so that when one bevel is stationary B rotates at one half the speed of the other.

"This enables either motor to hoist the entire load, but at one half the speed permitted by both motors. When (a) and (c) rotate in opposite directions at equal speed B is stationary.

"When (a) and (c) rotate oppositely at different speeds, then B will rotate in

the direction of the greater speed at one half the difference in their speeds.

"Thus the two motors A and C may run at or near full speed and by varying the speed of one or the other slightly, the drum D can be rotated forward or backward very slowly. The speed changes of the motors may be caused by load variations. This is the condition when automatically feeding the drill stem for drilling. The rotations then are such that motor A drives in the direction of lowering the drill pipe while motor C drives in the opposite direction to hoist it. When the brake on Drum D is set, the differential member B is stationary and the two motors are at equal speed. The rotary machine and the drill stem then rotate, but the drill stem does not move up or down.

"When the brake is freed, the weight of the drill pipe pulling on Drum D exerts a torque on B, through the gearing to motors A and C. This will tend to drive Motor A somewhat faster. Motor C on the other hand will oppose this pull and it will, therefore, slow down somewhat. Thus there will be a difference in their speeds; and Motor A being then the faster, the drill stem will be moving downward.

"The work of Motor C is always that of raising the drill stem out of the hole, even when it is descending. Its load, therefore, is caused by the weight multiplied by the speed of D if A were stationary. That is, the power load on C is always the measure of the weight on the driling hook.

"The work of Motor A during drilling, besides driving the rotary machine, is always to lower the drill stem into the hole. When motor A has no other positive load (such as friction and that due to the rotary machine) then the effect of the descending weight is to produce a negative load, and Motor A functions as a generator, that is, it serves as dynamic, regenerative brake. This coupled with the hoisting action of Motor C definitely limits the rate of downward movement of the drill stem. Thus the latter cannot drop suddenly on freeing the drum brake, nor when the bit passes from hard to soft formation.

"When Motor A thus serves as a regenerative brake, Motor C takes energy from the supply circuit and Motor A as a generator returns it. Apart from the losses, C and A balance. The kinetic energy of the drill stem in thus lowering itself will be transmitted to help turn the rotary machine. Furthermore, the output of Motor C obviously goes into the rotary machine. Thus when drilling, the output of both Motors A and C and the kinetic energy of the heavy drill stem are all transmitted to rotate the bit. Manifestly this means high efficiency for this method of drive.

"When the bit rests on the bottom, the weight on the hook is diminished by exactly the amount of the weight carried by the bit. Therefore, as the load on Motor C is diminished, its speed increases, Motor A, rotating the bit, receives the load due to the bit cutting on bottom and therefore tends to slow down.

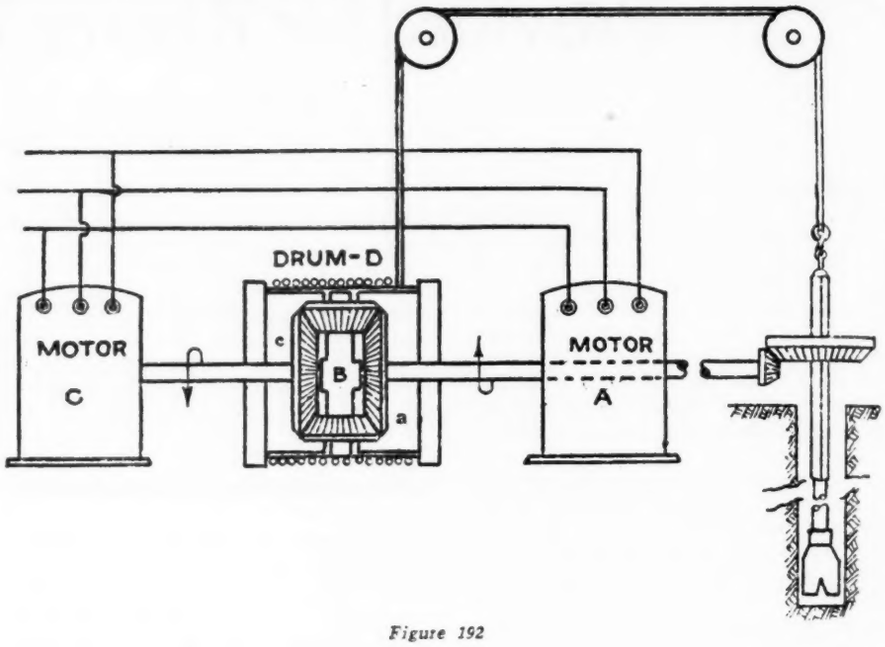


Figure 192

"The effect of Motor C speeding up and Motor A slowing down is to slow down the movement of drum D, that is, the drill stem moves downward more slowly; as the load on Motor A increases, this downward progress approaches zero movement, and when the load on A becomes still greater as sometimes happens in boulders, the drill stem moves upward.

"But the torsional load on the drill stem depends upon the pressure of the bit on the material it is cutting. Hence in the differential control, the progress of the drill is regulated by the pressure of the bit and by the torque on the drill stem.

"By slightly adjusting the motor speeds, a limiting pressure or weight on the tool results. When this is fixed for the hardest material it can be set—(a) to keep the drill stem straight; or (b) to keep the torsional stress on the drill pipe or the load on the machinery within predetermined limits; or (c) to limit the pressure on the cutting tool so as to secure maximum cutting action; or (d) to secure the maximum all-round results by the proper combination of (a), (b) and (c).

"When the adjustment is made for the hardest material, all other materials being softer and offering less resistance, will automatically cause lower stresses and lighter loads on the drilling plant.

"The regenerative characteristic of the drilling Motor A, when the drill bit is descending freely or through soft materials, automatically limits the over speed of the motor. This, combined with the continuous hoisting action of the regulating Motor C, causes automatic limitation of the rate of downward movement of the drill tool.

"This, too, can be controlled by slightly adjusting the motor speeds, so that the advance of the tool can be regulated and maintained to small fractions of an inch per revolution. The importance and value of this is manifest for drilling in the sticky shales where fine, thin shavings are preferable to large chunks or thick cuttings; also when drilling in gaseous sands where slow progress is desired in order to mud off the formation.

"When the driller, with the usual friction brake-gravity feed, advances the bit, he does it intermittently. That is, he releases the brake, allows the hoist drum to move through a short arc, then he clamps the brake tightly, holding the drum stationary until he believes the bit has cut itself clear or nearly so. Then he repeats this cycle.

"At the instant of clamping down the brake, a certain definite weight or pressure is transmitted by the bit to bottom. As the bit rotates and cuts away material, this weight or pressure diminishes to zero.

Hand Feed Uneven

"It is not fair and reasonable to expect any man, no matter how skilled and careful, to feed the bit so that each cycle is uniformly correct. Anyone who has observed the mental concentration and the physical effort required of the rotary driller will readily appreciate this. Hand feed manifestly precludes uniformity and must result in unavoidable overload and underload of the drilling plant.

"Considering the limitations imposed upon him by the hand feed the splendid achievements of the rotary driller are tributes to his remarkable skill and resourcefulness.

"But there is still another important factor in comparing hand feed with automatic feed. Few men, no matter how

capable and conscientious, can steadily and successfully feed the rotary drill bit by hand except for a limited time. The mental and physical strain becomes too great and he either stops drilling or turns the brake lever over to one of the men for relief.

"On the other hand, the differential drive with its automatic feed has advanced the drill in changing formations steadily without cessation for four hours, for the full length of the 'Kelly' about 45 feet. On one occasion such drilling was during a prolonged, heavy rain, but the driller, when he was not examining the other machinery was seated under dry shelter comfortably watching the outfit make hole.

"Clearly then the automatic feed of this drive makes it possible for the rotary driller to make hole faster, better, more uniformly and more steadily; yet with less strain and effort, than with hand feed.

Straight Hole—Twist Off Prevention

"These two go together and now are made possible by the automatic, controlled feed.

"One of the interesting things revealed by the differential drive on the first field trial was that the amount of weight or pressure required on the bit for drilling is much less than the design engineers of the apparatus has been led to expect. Many drillers had maintained that from six to fifteen 'stands' of drill pipe were necessary for satisfactory drilling. This means with six-inch drill pipe that the fishtail bit, which may be considered a knife edge, should carry six to fifteen tons of weight against the formation.

"When six to fifteen 'stands' of pipe of about 85 feet each are supported by the rotating bit, inevitably the column will bend. The rotation then occurs around a bent axis, and it follows that the metal throughout this bent portion of the drill pipe is first in tension, then in compression, for each revolution of the drill, resulting in stress reversals in the course of a few hours of drilling; crystallization then occurs and next breakage. It is significant that the large majority of twist offs occur near the bottom.

"It was previously shown that the power input of both motors in the Hild differential drive goes into the drill stem. A watt-meter ahead of both motors and indicating or recording their combined loads will give the measure of the load on the drill pipe. In practice this instrument proved helpful in many other ways. The indicating meter kept the driller constantly informed of the formation changes and the condition of his bit. The recording meter gave in graphic form the story of almost every phase of the drilling work, not only that of rotating the bit either on or off bottom, but also when 'running in' or 'coming out' of the hole, making connections, etc. This record was helpful not only for the driller, but of vast importance to the superintendent and the engineers.

"Of even greater importance than fast drilling and protective means for the drilling equipment is the facility for making straight hole. This the differential drive provides by reason of the steady regulated automatic feed and the means for holding up the drill pipe so that only the actually needed weight is on the cutting tool. A hole that is not straight causes many troubles, not only before the well is brought in, but after.

"The first field trial of the Hild differential drive produced a hole, pronounced by all who were concerned in making it as an actually straight hole."

Another Automatic Device

A more recent automatic rotary drilling device also using differential gears, but operated by steam instead of electricity, is the Ideal-Halliburton drilling control. As with the Hild device, the necessity for manual control is dispensed with. Although this new control still is in process of development, yet the first outfit put in service successfully drilled one well in California to a depth of 4000 feet and is over 3000 feet deep on the second well.

The principle of a differential drive is used to maintain the selected balance between the torque at the bit and the weight of drill pipe allowed to rest on the bit. The ratio between torque and bit pressure is selected by the driller according to the formation which is being drilled. Once this ratio is selected the machine acts automatically with no further attention from the driller excepting the supervision over the entire process.

The drilling control is placed between the power unit, only one of which is required, and the draw works. The power unit, which may be a steam engine, electric motor, oil engine, or gas engine, is located in approximately the usual position, it being necessary only to move it back about three or four feet. A short chain drive connects the power unit to the main sprocket on the drilling control. This sprocket is connected to and drives the outer case which carries the planet or idler gears on the differential. These planet gears mesh with two sun gears, one on each side. One of these gears is directly connected to the rotary by chain drive; the other is directly connected to the draw works drum. Advantage is taken of the two or three speeds of the draw works and in addition extra speed changes or reductions are arranged on the drilling control itself, which allows the driller to select the desired load to be carried on the drum. The speed reduction selected fixes the load on the bit and, therefore, the torque necessary to rotate the bit. If the turning torque exceeds the selected value, the side of the drilling control connected to the rotary retards or stops, while the opposite side connected to the draw works advances and winds up the rope on the drum, which relieves the pressure on the bit and, therefore, the torque. When this pressure has been relieved to the point where the drilling torque and the load on the drum again are in balance, the rotary side of the drilling control rotates freely while the drum automatically feeds the bit sufficiently and maintains the selected torque. During these phases of operation the load on the power unit remains constant.

The use of the Ideal-Halliburton drilling control practically eliminates twist offs in the drill pipe. It has also been found that a much straighter hole is obtained due to the fact that pressure on bit and drilling torque are always in balance. This feature is of vast importance, as it tends to eliminate reaming after drilling and reduces friction on casing.

Engineering Firm Takes New Member

WICHITA, KAN.—P. C. Keith and L. E. Winkler, who have been operating a refinery consulting engineering and construction business under the name of Keith & Winkler, have announced the admission to the firm of F. C. Koch, and the change of the firm name to Keith, Winkler & Koch.

Mr. Koch was formerly research engineer with The Texas Co., later, distillation engineer with the Gasoline Products Co., owners of the Cross cracking process and still later chief engineer and works manager of the Medway Oil & Storage Co. of England.

General Electric Exhibit

Five booths will be occupied by the General Electric Co. at the International Petroleum Exposition in Tulsa, from October 1 to 10. A motor-driven welding equipment and a gas-engine driven welding equipment will be shown in operation, together with capacitor equipment, electric drilling equipment and a scientific exhibit. W. A. Gluesing will be in charge for the General Electric Co.

Columbia Builds Station

CLEVELAND, O.—The Columbia Refining Co., distributor of petroleum products in northern Ohio, with headquarters at Cleveland, has purchased property on the right of way of the New York Central Railroad at Port Clinton, O. The company is now erecting a modern distributing station there, which will be ready for operation on or before Oct. 15. The station is being built to take care of the stations and various pumps which the company owns in that territory, according to L. M. Cole, of the Columbia company.

Wide Range of Equipment for Better Operating is Offered Producer

Staff Special

CLEVELAND, Sept. 28

WHILE the changes in surface equipment for pumping oil wells have been many since the birth of the oil industry, particularly in the prime movers and the methods of transmitting power, the basic principle upon which the vast majority of our wells are pumped today is the same as that employed at the beginning. It was brought over to the oil industry from the operation of water wells.

It is based upon the use of valves within a cylinder. Both valves now employed are balls and both are free, but the distance of travel of the upper is roughly equal to the stroke of the rods, being confined in a cage attached to the string of rods, while the lower moves within a confined space only so much as to admit fluid into the working barrel.

Water well pumps on farms are still frequently of the type using a flat valve fitting the working barrel, or cylinder, which is of greater diameter than the tubing and having a round, flat disc in the center which releases with the lift of the water. In respect to type of valves, the oil industry has gotten away from the original style of pumps.

While the principle employed is the same, the equipment manufacturers have gone far in providing efficient working barrels and valves, cups for the barrels as long-lived as possible and designed to work smoothly. Their metallurgists have been at work providing the best of steel for tubing and sucker rods and barrels. Screens have been provided for the type of wells having considerable quantity of free sand mixing with the fluid and expert attention has been given to devising the equipment necessary to lift oil at the lowest cost. The importance of this is well understood by the producer who operates wells yielding a small amount of oil—frequently but a fraction of a barrel per day.

Replacement of sub-surface equipment in a well is always expensive, not alone because of the cost of new material, but more so because of the cost of labor and decrease of income while a well is off production. Hence, the manufacturing problem has been to provide equipment having as long a life as possible, reducing the frequency of replacement. Cups, which must be non-metallic, cannot be supposed to last forever, as there is constant wear, but they have been improved greatly in efficiency since the early days of the industry.

Use of Air Lift

The chief change in the principle of pumping wells has been in the introduction of the air-lift, which is the exertion of compressed air on the fluid to cause it to flow through the case or tubing. This method is used to some extent in fields of southeastern Ohio and West Virginia, where patented equipment is employed and is used in simpler form in some of the fields of Texas, Louisiana and Arkansas where wells yield large quantities of fluid.

The industry still relies on the old-style lift pump, however, and at any exhibition of equipment, such as the International Petroleum Exposition, there is given to the oil producer ample opportunity to examine the dozens of manufactured articles, such as working barrels, cups, valves, screens, tubing bleeders and so on which make up the sub-surface equipment for pumping.

The important item of sucker rods has been subjected to great improvement within recent years. There is little that is apparent to the eye that marks the superiority of one rod to another, as most of the improvement is in the composition of the steel. Early day wells were pumped with wood rods having winged couplings, but only in rare instances are they now to be found in the oil industry. In a few places where corrosive waters shorten the life of steel rods to the point where replacement costs are prohibitive, wells may still be found using wood rods for part of the string. One manufacturer still makes them, but their use is confined chiefly to shallow water wells.

Wood rods were used at first because there was no method of joining the rods together except by welding the box and pin on the rod and the welds broke quickly. Later the practice of upsetting the end of the rod in a malleable sleeve to form the box enabled manufacturers to turn out rods of a solid piece of steel and this is the practice of today. The malleable sleeve, being larger in diameter than the rod, takes up the wear against the tubing and being of softer metal saves the tubing from cutting through.

Improved Steel

The principal advancement in manufacture of tubing has also been of a metallurgical nature. Cast iron tubing and some copper tubing was used in the early days but its cost led to the use of steel before many years had passed. A development of recent years by at least one manuafcturer has been a copper alloy tubing which has given splendid service in fields where corrosion is pronounced. In some cases only that part of the tubing which is in contact with the fluid is made up of the copper alloy joints, the rest of the string being steel.

Many are the changes that have been made in surface equipment for pumping oil wells. Originally pumped individually with steam engine for each well, the industry came presently to the less expensive method of installing central power and pull rods radiating therefrom to the wells within operating distance and handling as many as the power could operate. Large numbers of wells are sometimes seen hooked to one power. In one of the fields of Ontario, for example, about 150 wells are pumped from one central power. Of course, this number is not on the power at one time, as they pump off quickly and are alternated to make up the load.

Changes in Jacks

Many changes in design have been made in the pumping jacks at the wells with the underlying thought of reducing friction and making for more perfect alignment between the jack beam, which transmits the up and down motion to the rods, and the rods themselves.

The long stroke pumper is a development of recent years, brought about to meet the conditions in certain fields where large quantities of fluid—frequently containing much water—must be lifted to the surface from wells that will not flow. A number of types of long strokers are in use, some of the geared type and others obtaining the increased stroke by increasing the arc of travel of the beam.

Multiple stage pumps are also recent inventions, brought out by the increasing depth of wells.

Probably the greatest improvement in pumping equipment has been effected in the power itself. Gas engines are generally used for pumping—rarely does one see a steam pumping plant in operation nowadays. In many of the old fields where there is not enough gas to operate the gas engines for pumping, gasoline is used and in a few instances oil engines are found.

There is a fairly rapid trend to electric power for pumping, generally using unit motors.

Improvement in Swabs

Along with the development of other field equipment for the efficient production of oil it is proper to mention the development of the swab. A swab is now used under certain conditions in place of the old time bailer, or bucket.

Fluid in the hole is displaced more quickly by the swab than was the case with equipment previously used. This is because of its establishing more or less vacuum on the bottom of the hole and by reason of its fitting tight against

Continued on Page 93

the walls of the casing in the well. Use of the swab allows a well to come in quicker in its completion stage.

Swabbing practice is resorted to in some fields after wells have passed beyond the flowing stage and prior to their being put on the beam for pumping.

A refinement in swab construction has been brought about by the use of rubber cups in a wire frame. This minimizes the chance of sticking the swab in a well and also makes the swab adaptable to any uneven places where joints come together in the casing.

"Hinged Door" Elevators

Safety latch elevators, besides preventing junked holes as a result of the dropping of drill pipe, constitute one of the greatest single factors in the saving of men's lives in the oil fields. The old type elevators, which did not have the "hinged door" safety latch, would frequently flap off and at least endanger the lives of workmen in addition to being responsible for operating grief.

When the "hinged door" type of latch snaps shut it is impossible for the equipment attached to it to flap out and give trouble. Besides eliminating the danger that was always present with older type equipment, the use of the newer elevators has saved hundreds of thousands of dollars in the oil country in offsetting lost time and junked holes.

Blowout preventers and control casing heads are developments in oil field equipment that have been of untold value in the industry. The control casinghead and oil saver, used in drilling with cable tools, is an appliance which acts as a gate valve to shut-in a well or divert its flow out to adjacent tanks. Blowout preventers are used in rotary drilling practice.

In effect, the control casinghead and oil saver is a big 3-way stop cock. When equipped with the oil saver the control head on a well is open to the flow line. The oil saver is set-screwed into a recess made for it in the control head; the tools are lowered into the hole and the oil saver clamped over the wire line loose enough to allow the drilling line to work.

As the drill goes deeper and deeper into a pay sand and the yield becomes heavier and heavier the oil moves through the flow line instead of going straight up into the air after the manner that it would without the oil saver being in use.

In fields where the agitation of producing wells has been a practice it is the custom frequently to leave the tools in the hole until the need for such work has passed. This practice was followed in the development of the Breckenridge field of the General Ranger territory and the Wortham pool of the east Texas fault line district, among others.

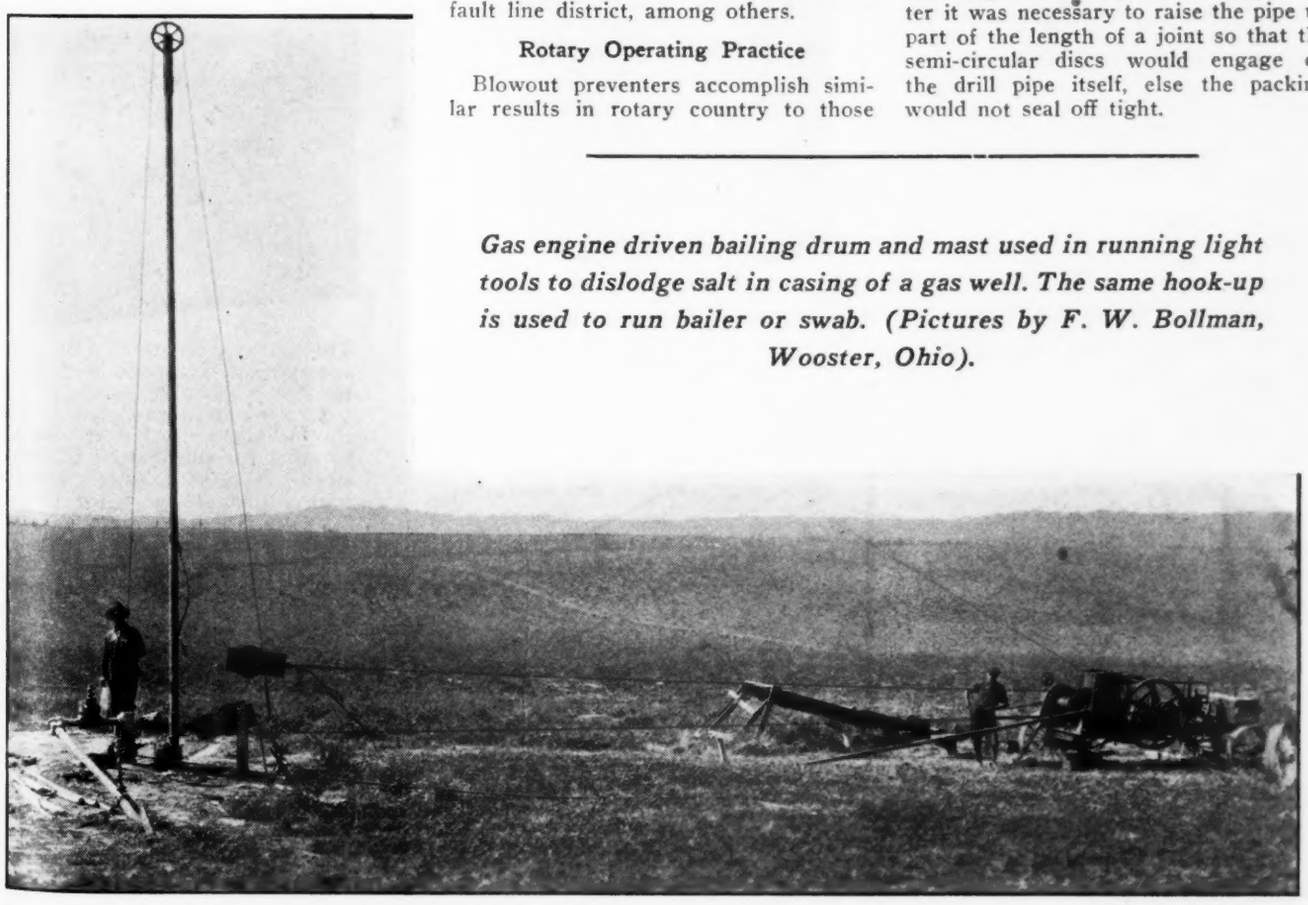
Rotary Operating Practice

Blowout preventers accomplish similar results in rotary country to those obtained with control casingheads and oil savers in cable tool operations. The blowout preventer screws into the casing above a master valve. It also has three openings. When a blowout starts in drilling through this rotary device, two semi-circular discs fitted with hydraulic packings are screwed together by means of long handles attached to screw heads on either side of the preventer.

The contact of these semi-circular discs with the drill pipe forms a tight joint. This prevents the fluid being blown out past the drill pipe. Pump pressure is then applied through the drill pipe. This serves to place heavy mud at the bottom of the well for the purpose of attempting to kill the blowout.

If this method is not immediately successful then pump pressure is also applied, at the same time, through the third opening. This places the mud down the hole on the outside of the drill pipe.

An improved type blowout preventer now being marketed differs mainly from those previously sold as regards a quick closing feature. The improved type is also arranged to permit of packing off against the square kelly-joint, or drill stem, that works in the rotary. In using the old style blowout preventer it was necessary to raise the pipe up part of the length of a joint so that the semi-circular discs would engage on the drill pipe itself, else the packing would not seal off tight.



Gas engine driven bailing drum and mast used in running light tools to dislodge salt in casing of a gas well. The same hook-up is used to run bailer or swab. (Pictures by F. W. Bollman, Wooster, Ohio).

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Merit Oil Equipment is built by men who understand the needs and problems of oil marketers and who have used that knowledge in designing equipment that is convenient, durable, serviceable and adequate.

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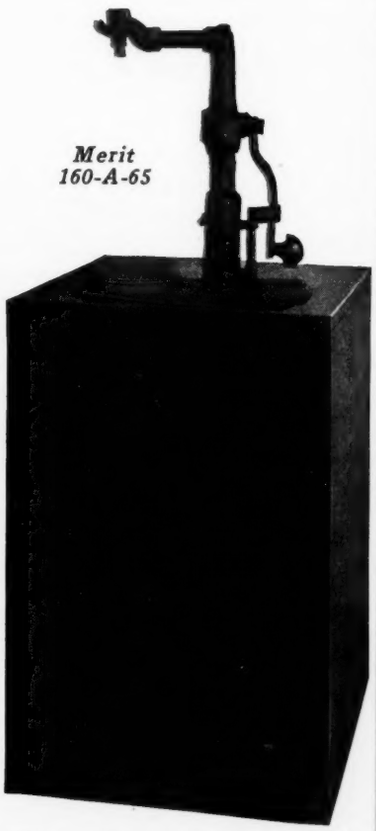
Merit 125-R-55

A 55 gallon lubricating tank equipped with a bolted type No. 125 Merit Pump.

Merit 130-R-55

This outfit consists of a 55 gallon round lubricating tank equipped with Merit No. 130 improved 1 quart oil pump. This pump has adjustable stops for ½ pint, 1 pint and 1 quart measure. Locking device locks handle, return drain pipe and fill opening with one operation.

Merit 160-A-65



This outfit consists of a 65 gallon square tank equipped with Merit No. 160 adjustable pump.

This pump is intended primarily for kerosene, but it can also be used for lubricating oil if desired. It is of 1 gallon capacity with adjustable stops for 1 quart, ½ gallon and 1 gallon measure. Locking device locks handle and fill opening at one operation.

An exceptionally serviceable outfit for the discriminating marketer.

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These are your guarantee of quality products in the Merit line.

For Your Protection
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Merit
No. 200 Outfit

This grease outfit consists of a 100 lb. drum equipped with a one-half pound grease pump mounted on handy truck having 8" wheels.

Notice that space on the drum is available for imprint.

Merit
No. 100-V-R-55

Consists of a 55 gallon lubricating oil tank equipped with a No. 100V visible oil pump.

Pump has bottle filling spout, no drain nozzle, quick return drain pipe and is water and dust proof.

Merit
No. 160-R-60

A 60 gallon round tank equipped with Merit No. 160 kerosene pump, makes up this serviceable outfit.

Adjustable stop pump with stops for one quart, ½ gallon and one gallon is equipped with special lock that locks handle and fill opening at one operation.

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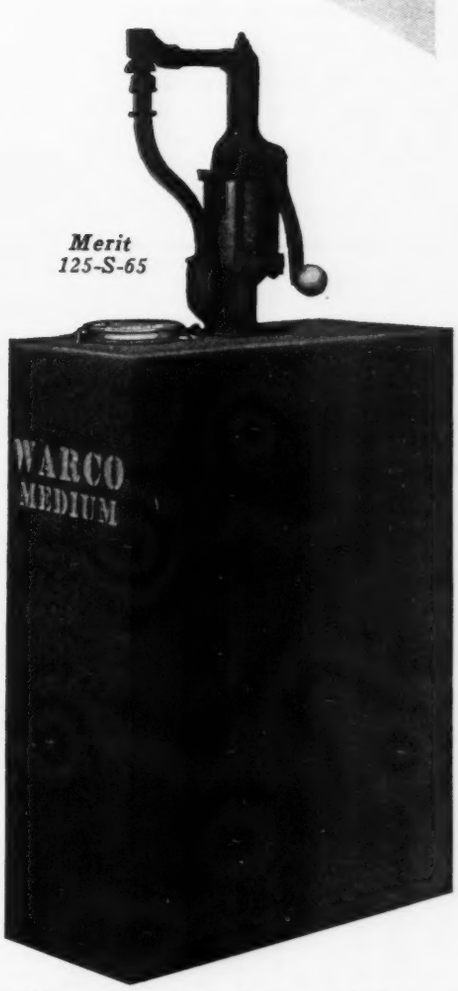

Merit
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This rectangular tank is especially serviceable in stations where space is at a premium. Is equipped with a No. 125 adjustable on quart pump and has fill opening equipped with screen and gauge stick.

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They Work While He Sleeps

Information on the trouble which oil has brought to a resident of Robinson, N. D., is given in the Aberdeen, S. D., News:

From the old town pump is pumped a dark brown mixture of oil and water. On settling, an amber-colored oil rises to the surface of this. It appears to contain parafin and other oil products. At present there is some dispute over the ownership of the well which was sunk some years ago by a town site corporation of Messrs. Cameron, Kooker and Legler while now it is claimed by Tom Nerby who has put a padlock on the pump and sits for hours at a time with a shotgun guarding the surface of the well from the greedy farmers who rush in whenever he slips off for a nap to dip up the fluid by the cream can full and cart it off to use in their tractors.

Town lots have jumped in value and those against which there were taxes for ten years back are now clear titled.

Now For The Diamond Drill

The Fredericktown, Mo., News Democrate, reports that Judge Huck is undismayed after drilling 20 feet in granite topped at 245 feet. Fredericktown has a gasoline well which formerly produced water but the fluid now meets Missouri state gasoline inspection tests.

The first hole to be drilled in Madison county in the search for oil, came to an end the first of this week after boring about twenty feet into the granite. It had bored through sand and limestone to a depth of 245 feet when it encountered granite. Thinking that the granite might be a boulder or a shell, the drilling continued about twenty feet in the granite and until Judge Huck arrived Monday afternoon and stopped the operations.

Judge Huck expressed himself as not at all discouraged, but indicated that he might test the granite by means of a diamond drill a little later.

F. J. Thurman of the Ethel Oil Co., composed largely of local men, was in town the first of the week. He is proceeding with his stock sales and expressed himself as more optimistic than ever over the outlook. He stated that he believed he would be able to put a drill here by the 15th of the month.

The Oblique Approach

Sioux City, Ia., Tribune reports on something in the stock selling line which is, after all, rather different:

Huron, S. D.—A new oil stock selling method has been reported here. A salesman, representing himself to be a Wyoming farmer, is said to be going around among the farmers in this section ostensibly "to buy hogs." In the course of the conversation he says he has struck oil on his Wyoming farm but has not sufficient capital to develop the field. He offers to sell an interest in his project, which he says will be confined strictly to farmers.

Elgin Excavations

People of Elgin, Ill., are goaded by the editor of the Courier to attempt some backyard wildcatting:

Drilling will soon start in LaSalle county, where thousands of acres of land have been leased. A gas well near Ransom in that county is now being developed. Drilling in Grundy and Will counties will begin within 60 days, promoters say.

So if you have dreams of gushing wells and easy wealth, get out the old spade and begin digging in the back yard, for if there is oil 40 miles from here there may be some around here too.

Heavy Duty Rig

Roundup, Mont., Record tells of a bit of subsurface exploration going on in the Devil's Basin field,:

Drilling with the portable Leidecker rig of the Roundup Oil & Gas Co. is proceeding very satisfactorily, and those in charge of the operation declare the hole can be carried to a depth of 200 feet if necessary.

An Anticlinal Nose?

Interesting bit of nasal surgery as reported by the Baker, Mont., Advocate:

He, with Fred Jay, is now drilling on his own hook and says expect to give Thompson Creek a thorough test.

THERE, THERE, THERE— SEE THE NICE LOLLYPOP DADDY HAS FOR BABY
GASOLINE AT COST
STATE OFFICIAL WITH POLITICAL ASPIRATIONS
VOTERS OF S. DAKOTA
CORN CROP FAILURE
BUSTED BANKS
SEIBEL

SOMETHING MUST BE DONE TO PACIFY HIM

THE EDITORS' VIEWPOINT

The "Give Aways"

THE giving away of premiums of radio keys, pencils, candy. Kewpie dolls, safety razors and what not along with gasoline purchases is a step downward from the granting of secret rebates.

If the oil business, or even any share of it, has reached the point where its gasoline sales have to be angled for with premiums of some kind, where the quality of the product sold does not enter into the picture at all or intelligent salesmanship or advertising, then it is about time the industry had a sharp right about face. Buying business with a gift or premium is pretty much taboo in most business lines now. It has been frowned upon by the government in the relation of salesmen to their prospects and customers. Certainly the public can have little respect for an oil company which has to offer a lottery chance on a radio, or a flashlight, to induce customers to purchase motor fuel at its stations.

It's bad enough when such premiums are offered at opening days of new service stations, but, when they apparently become part of the established marketing policy of a company, they introduce the lowest plane of marketing ethics yet experienced.

The chances are that the offering of keys in the radio lottery, which is being done in some parts of the middle west, is unlawful. Some states have laws against carrying on a lottery in connection with the merchandising of a commodity. The whole business of giving away premiums is simply an admission on the part of the company carrying on the practice that their organization cannot stand up against others in the same line of business in straight merchandising tactics.—V. B. G.

Why Not for the Oil Man, Too?

A GOOD head for this Washington despatch in a nice yellow newspaper would be "Government experts would boost cost of living. Advises farmers how to raise their prices."

Here's the story carried in a recent issue of the Chicago Tribune under a Washington date line:—"Winter wheat production in the United States next year will be considerably in excess of probable domestic requirements, if farmers carry out their intentions to increase acreage some 4,000,000 acres above last year and average yields are secured. The Department of Agriculture so points out in the Wheat Survey Report issued today."

Of course, this is the Department of Agriculture talking for the farmers, who are supposed to have considerable voting power. We wonder what the followers of LaFolletteism and such would say if the Department of Commerce were to issue the same report except instead of speaking of farmers and their 4,000,000 acres, it were to speak of oil producers and say 40,000,000 barrels more of crude oil production. Or, if it was still the Department of Commerce, and it were to say refiners in place of producers, and, in place of barrel production, speak of an increase to say 400,000 barrels a day in refining capacity.

Yet, if the observations are correct from standpoint of facts and economics, they would only be aimed to the same purpose as the Department of Agriculture observations now are; and that is to advise the oil men that, if they run into a period of over-production of crude oil or of refinery products, their prices will be low. That is all the Department of Agriculture is saying to the farmer. Raising the farmers' prices seems to be all right with our bolshevik friends, but raising anybody else's prices is all wrong.—W. C. P.

The Public is Educated

CHICKENS generally come home to roost, but oil men don't always seem to realize it.

Some oil man or oil men in conversation with New York newspaper men the other day, in discussing the recent declines in gasoline prices, referred to some who had been cutting the market of the big companies as bootleggers."

And here is the way that chickens came home to roost, as spread all over the country by the United Press, a news wire maintained by the Scripps-Howard newspapers.

"New York Aug. 20.—The bootlegger has entered the gasoline business as a factor in automobile fuel prices.

"There are two classes of bootleggers.

"Members of the first class are called 'crackers.' They increase the volume of ordinary 'gas' by heating it to a certain temperature at which point the mixture is broken down or 'cracked.' The process increases the volume but makes the gasoline inferior.

"Members of the second class are branded as plain 'gyps.' By 'skimming' a mixture of gasoline and kerosene from crude oil they get a great deal of volume cheaply. These concerns operate when the crude prices are comparatively low and the prices of gasoline at the refinery high.

"Then when there is an unusually wide spread between prices at the refinery and prices at the tank wagons, a third class of temporary concerns springs up. These buy at the refinery and sell direct to retail dealers under the market tank wagon price."

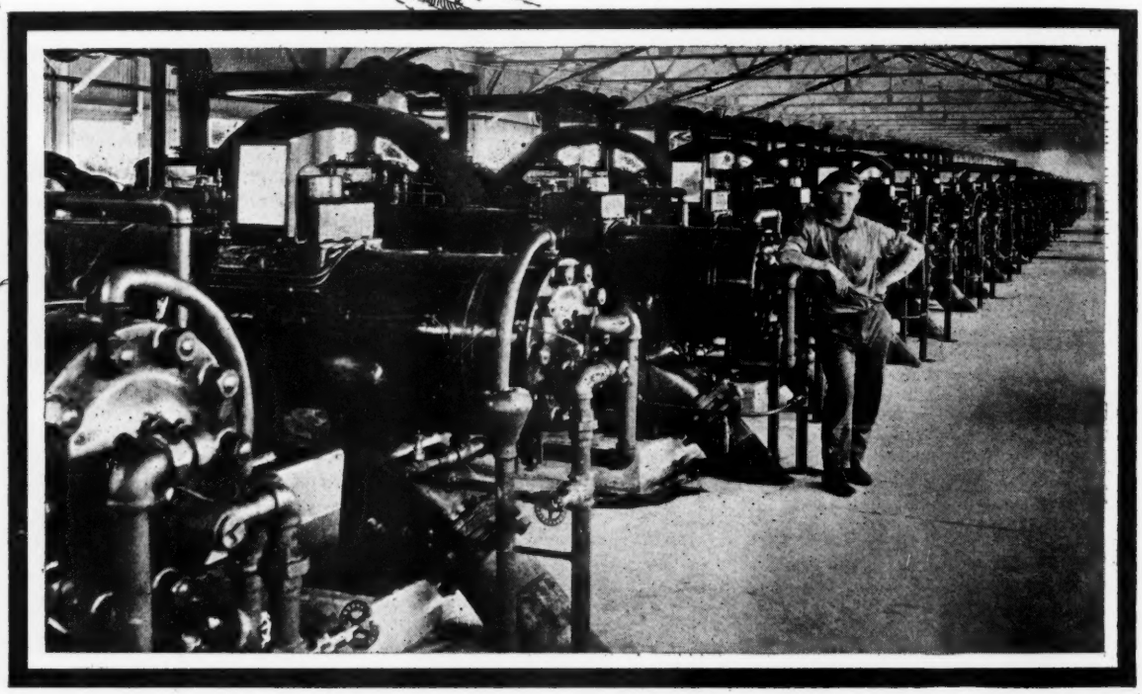
So it would seem that now everyone is a bootlegger; that the Standard, the Texas and all other companies who have spent millions in developing a better and cheaper motor fuel are "cracker," presumably a low brow type. It would appear that all skimming plant operators are "gyps," including all such members of the Western Petroleum Refiners Association as operate skimming plants. The third class isn't described by any special derogatory name but it includes all the oil jobbers in the country, although possibly some of the more discriminating readers of this dispatch may confine only the jobbers who cut prices to the third class.

At all events most of the oil industry are bootleggers.

If one has a due regard to the right use of the American language, the word "bootlegger" doesn't fit anywhere in the oil industry. A bootlegger originally resided in "dry" territory and carried a stock of liquor in the legs of his high leather boots. As this country's demand for wet goods can not now possibly be supplied from a stock carried in leather boots, no matter how fast the boot factories run, the purveyors of refreshments have dispensed with the boot. But the term "bootlegger" is recognized everywhere as applying to one who sells that which is forbidden by law. The term has nothing to do with prices. In fact, reports have it that the liquor "bootlegger" deal only in "quality" prices regardless of the quality of their wares.

As the record before the public now stands, the public can't be blamed much for believing that the gasoline "bootleggers" are really the people who are bringing down the price of gasoline.

Let us talk sense in proper language!—W. C. P.



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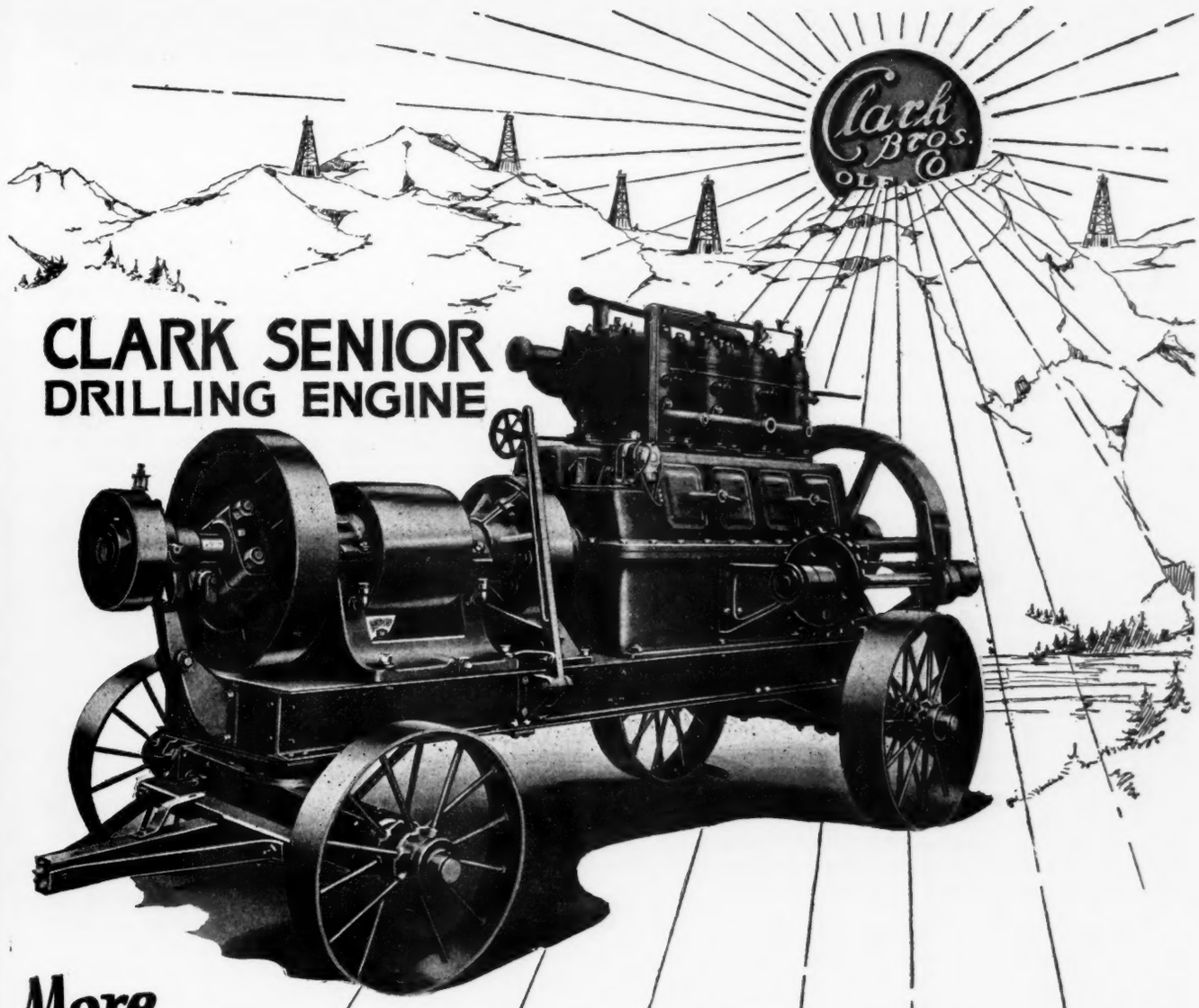
CLARK



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Decree Entered in Wilmington Suit Against Texon

By Paul Wagner
N. P. N. Staff Writer

HOUSTON, Sept. 26

ANOTHER chapter in the court troubles of the Texon Oil & Land Co. of Delaware was written in federal court at Wilmington with the recent entering of a decree in a suit filed last April by William A. Schenck, retired manufacturer of Meriden, Conn.

Advices from Wilmington are to the effect that under this decree 512 shares of Group 1 Oil Corp. are to be turned back into the treasury of the Texon Oil & Land Co. of Delaware; and the Texon, as a corporation, shall have an option for 60 days to buy 113 additional shares of Group 1 stock from Haymon Krupp, Frank Pickrell and associates at $3000 a share, or a total of $339,000. Krupp is president and Pickrell vice president of the Texon.

Texon Oil & Land Co. of Delaware, in consideration of the two phases hereinbefore mentioned, is to validate stock issued under what is known as the Carl C. Cromwell contract which covers 2,400,000 shares; but this validation is not to prejudice approximately 400,000 shares purported to be owned by G. A. Loomis & Co., and Levy Brothers, New York brokers, impounded in a Wilmington receivership.

Exercise of the 60 day option would give Texon Oil & Land Co. of Delaware 3/16 and Group 1 Oil Corp. 13/16 of a 25 per cent interest owned by them in the Big Lake Oil Co., a $4,000,000 corporation, and the Texon would have approximately 62 per cent of the Group 1 Oil Corp.

The Cromwell Contract

The Carl G. Cromwell contract, dated March 26, 1924, and regarding which a court battle has centered at El Paso, Texas, provided that Cromwell was to receive 2,400,000 shares of Texon stock as compensation for drilling eight wells validating University of Texas permits of the Texon and affiliated companies in the Big Lake district of Reagan County.

It was brought out in district court at El Paso last May, in a suit brought by H. C. Hanszen and J. P. Scranton of Houston, that the Cromwell stock was to be issued, according to the contract, in installments as each well was completed, on a basis of 300,000 shares for each well.

A supplemental contract made on the same day stipulated that Cromwell was to assign the stock in blank and deliver all of the 2,400,000 shares to Nathan I. Sacks, Texon attorney, this stock to be held in escrow for two years; except that a proviso was made that in event of an agreement for the sale of said stock with G. A. Loomis & Co., then all stock purchased under such agreement was to be delivered by Sachs to Loomis and proceeds of the sale were to be deposited in a bank mutually agreed upon by Pickrell and Cromwell, signers of the contract.

The existence of this contract and information regarding its terms were developed at El Paso in the suit brought by Messrs. Hanszen and Scranton, who acted in harmony with a Stockholders Protective Committee composed of Holland S. Reavis of 120 Broadway, New York City; W. G. Skelly, president of the Skelly Oil Co., Tulsa; D. J. McAuliffe, 120 Broadway, New York City; and Mr. Hanszen, an individual operator, of Houston.

Judge P. R. Price, in Forty First District Court at El Paso, rendered an order on behalf of complaining stockholders appointing M. W. Mattison, of Houston and New York, to audit the books of the corporation; restrained the voting at the annual meeting scheduled for El Paso in May of 1,400,000 shares issued in the name of Cromwell; and restrained the further issue of any stock.

The El Paso court order also restrained defendants from taking action with regard to a contract between Krupp and Pickrell, on the one hand, and the Texon Oil & Land Co. of Texas, on the other. Under terms of this contract, dated November 3, 1924, Krupp & Pickrell sold 363 shares of Group 1 Oil Corp., an affiliated company to the Texon Oil & Land Co. of Delaware. Krupp & Pickrell were restrained for six months from selling or delivering to anyone any of the shares owned by them in the Group 1 Oil Corp.

El Paso Suit Still Pending

The statement is made by one of the plaintiffs in the El Paso suit, which comes up again for hearing October 5, next, that the action taken in the Wilmington federal court was without the consent or knowledge of those acting in conjunction with the stockholders Protective Committee, which last mentioned group maintains headquarters at 120 Broadway, New York City.

An audit of the books of the Texon Oil & Land Co., of Delaware; the Group 1 Oil Corp., and Group 2 Oil Corp., affiliated companies; and the Texon Oil & Land Co., of Texas, subsidiary of the Texon of Delaware, has been completed by Mr. Mattison and mailed to the El Paso court.

In both the Wilmington federal court suit and the El Paso district court suit, officers of the Texon and affillated companies were made co-defendants with the companies as such. In the Wilmington proceedings, G. A. Loomis & Co. were made parties to the suit.

Details of both suits, together with statements of participants in court litigation, were published in detail in the May 13, 1925 and May 27, 1925 issues of National Petroleum News.

Independent Operators Open New Pool

Staff Special

TULSA, Sept. 26.—Opening of a new pool five miles from production and placing Lyon county in the ranks of Kansas' oil-producing counties may result from the favorable showing reported in a test drilled by J. W. McCullough, formerly of the Independent Oil & Gas Co., and R. W. Tabot, both independent operators of Tulsa. This test is located in the NWc NE of 25-21-10E, and is known as No. 1 Bradfield. It is in the second break in the Mississippi lime, the formation generally called the Wilcox sand in southern Kansas, and has been drilled one foot into a formation topped at 2586 feet, from which oil filled the hole up to 2000 feet in three hours.

The operators are waiting for pipe line connections and building two 250-barrel tanks before drilling in. The hole is standing practically full of oil, and the well is estimated good for about 400 barrels as it stands, although it has made no gas and does not flow. The oil is of about 25 degrees gravity, and is reported to have a high lubricant content, similar to the crude produced near Coffeyville.

The structure, which was mapped by John W. Merritt, consulting geologist of Tulsa, consists of a surface dome mapped on thin limestone beds in the Olke shales, with closure of about 40 feet, the high point being just east of the well.

Some time ago, the Super-Six Oil Co. drilled a well in the NEc SE of 24, a half-mile north and the same distance east of the new well, drilling it in a foot or two into the second break. The oil was only about 19 gravity, and at that time no market could be found for it. The well has never produced commercially. This well seems to be about 25 feet down structure from the McCullough test. A half-mile west of the new well, the Magnolia Petroleum Co. drilled a test in the NEc of 26, which showed for about 100 barrels in the top of the same formation now showing in the McCullough well. This showing was only in the top of the sand, however, and water was found in the bottom of it. The well was drilled on down to 2766 feet and abandoned. Top of oil horizon in this well figures 24 feet lower structurally than in the new discovery.

Increased Production Likely in Okla. Crude Cut Expected Soon

By A. F. Hinton
N. P. N. Staff Writer

TULSA, Sept. 26

OKLAHOMA production declined nearly 5000 barrels the past week, which is welcome news after the 14,000-barrel increase of the week before, but its total is still perilously near the half-million mark, which in all probability will be passed in the next two months.

It would not be surprising if visitors to the International Petroleum Exposition, now about to open for a 10-day run in Tulsa, should have their gaiety and enthusiasm lessened somewhat by a cut in the price of Mid-Continent crude. Such a reduction has been generally looked for since the Prairie Oil & Gas Co.'s pessimistic statement in connection with the passing of its dividend, and it became more likely when California crude prices were cut. Now that the Standard Oil Co. of New Jersey has again started reducing its tank-wagon market, it looks more than ever as though we may expect another downward swing in all crude and refined prices in the near future.

A year ago at this time the Prairie was busily hacking away at crude prices, getting them down on Sept. 27 to a 75-cent minimum and a $1.25 maximum, as compared with a present range from $1.15 to $2.43 a barrel. At that time, however, it is well to remember that Oklahoma's production was breaking all records, with a peak of nearly 550,000 barrels a day, at least 60,000 barrels greater than it is at present, so that the low crude prices then prevailing were justified.

Between now and the first of the year, which generally is the time when crude prices start upward the prospects are that Oklahoma's production will tend generally upward, although it does not seem probable at this time that its output will mount as high as it did last year, taking into consideration only those fields now being exploited. Any wildcat well now drilling could bring in a field that would be making 100,000 barrels a day by January 1, but we are not predicting that. Rather, we are hoping that nothing of the sort occurs.

Production to Increase

Increased production in the next three months may come from developments in the Garber, Thomas, Braman, Davenport, Mehan, and northwest Stroud fields, with Garber the largest contributor to the increase. None of these fields now gives any indication of being a record-breaker in production, as compared, for instance, with Tonkawa or Burbank, and most of them probably will prove to be of comparatively small area. However, they may cause the state's crude output to gain considerably by increasing all at the same time. Garber should be up to around 60,000 barrels daily by the middle of October, although the water situation there makes all forecasts hazardous. After this figure has been reached, probably two months will elapse before additional deep sand production is brought in, and by that time the first group of deep wells probably will have declined materially.

Thomas, which is now up to 10,000 barrels daily, has a somewhat brighter outlook as the result of the Carter Oil Co's. new well, but there is still no reason to believe that it will cover much area, as four edge wells already have been drilled into water. Braman is still an unknown quantity as to area and future production, but it seems safe to say that, whatever area it finally develops, and most of its production will be on leases of the Comar Oil Co., thus lessening its menace, if any, to the general crude market. Davenport, which is now making 16,000 barrels daily, probably will not go higher than 25,000 barrels, and then will decline rapidly, as was the case at Stroud, its sister field. The Mehan and northwest Stroud fields are still one-well pools, and little can be said of their status. However, both are in the Wilcox sand, and it is reasonably safe to assume that neither will be large in area.

No new wells were added to the list of completions in the deep sand at Garber the past week, the total remaining at 16. One or two additional wells are in the sand and producing but have not been completed as yet. The field's production declined somewhat over the week, while water output gained considerably more in proportion. Roxana Petroleum Corp. is maintaining its lead over the field, with two wells making 14,675 barrels of oil and no water. These two wells alone are producing about 42 per cent of the entire deep sand production.

The latest well in the field to reach the deep pay is Sinclair Oil & Gas Co. No. 29 Belveal, in the NWc SW NE of 24-22-4W, a quarter-mile south and a half-mile west of the discovery well on the same farm. This well made 600 barrels the first 24-hour gauge after drilling to 4495 feet in the oil pay topped at 4485 feet. This is a quarter-mile north of the same company's No. 28 on the Belveal, which had a hole full of water at 4566 feet and was drilling ahead at 4628 feet at last reports, apparently too deep for the regular pay. Sinclair No. 30 Belveal, in the NEc SW NE of 24, was drilled from 4550 to 4560 feet during the week, and increased its production from 30 to 100 barrels daily. It is still drilling ahead. This well is half way between No. 25, the discovery well, and No. 28, mentioned above.

Mid-Continent Petroleum Corp.-Marland Oil Co. No. 44 School, in the SWc SE of 13-22-4W, had the green shale from 4395 to 4400 feet and is now drill-

(Continued on Page 103)

Drilling Operations in Oklahoma, Kansas and N. Texas

	Sept. 26 Loc.	Rigs	Week Drg.	Ending S.D.	Total	Sept. 19 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	..	1	11	1	13	...	1	11	1	13
Other Osage	4	4	57	10	75	6	6	61	11	84
Bristow-Cushing	19	30	124	27	200	16	29	125	27	197
North Oklahoma	12	12	158	112	294	11	16	163	107	297
South Oklahoma	5	15	115	68	203	4	17	122	67	210
Muskogee	..	14	47	18	79	...	11	49	21	81
Okmulgee-Bristow	7	46	121	41	215	4	54	120	43	221
Tonkawa	..	2	16	9	27	...	2	18	9	29
Wewoka-Cromwell	10	8	124	25	167	11	9	113	29	162
Total Oklahoma	57	132	773	311	1273	52	145	782	315	1294
KANSAS	53	81	221	143	498	54	93	237	141	525
NORTH TEXAS										
Eastland County	..	3	33	6	42	...	2	31	5	38
Stephens County	..	20	38	26	84	...	18	41	23	82
Texas Panhandle	..	12	34	11	57	...	12	34	11	57
Mexia District	..	10	14	11	35	...	8	13	13	34
E. Tex. Wildcats	..	8	6	21	35	...	8	7	20	35
W. Tex. Wildcats	..	14	126	64	204	...	18	134	64	216
Wichita Falls	..	45	144	42	231	...	38	143	41	222
Total N. Texas	..	112	395	181	688	...	104	403	177	684
GRAND TOTAL	110	325	1389	635	2459	106	342	1422	633	2503

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Tulsa Exposition , , Booth No. 61

ing at 4408 feet. Healdton Oil & Gas Co. No. 30 Belveal, in the NWc NE of 24, made 380 barrels in 24 hours at total depth of 4499 feet, but is not yet completed. This company's No. 29 on this farm, in the NEc of the 40 acres, is dead with a hole full of water. This failure lies between the new well and the Sinclair discovery well.

The table shown on page 109 shows the daily average production from the deep pay at Garber during the past week, by companies and wells.

New Well at Thomas

In the Thomas field, Kay county, a big well was added to the list of producers when the Carter Oil Co. drilled in its No. 3 Turk, in the NEc of 21-25-2W, a quarter-mile west and a location south of the Marland discovery well. During the last 24 hours, the Carter well produced 5413 barrels, or about 225 barrels an hour. It had the top of sand at 4125 feet and has been drilled to 4143 feet.

The Marland Oil Co. No. 1-A Thomas, in the SWc of 15-25-2W, now three weeks old, is still flowing 5900 barrels daily from total depth of 4058 feet. Its No. 2, which discovered the Wilcox sand at 3955 feet last spring, is holding up at around 3000 barrels daily, and has proved itself one of the

Completions in Oklahoma and Kansas, Week Ended Sept. 26

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Humble	17	C NW SE SW 9-4-2W	2442–2457	100
Simpson-Fell	3	C NW SW NW 10-4-2W	T. D. 2815	Dry

Carter County—Brock

Amerada	1	NWc SW SE 20-5-1E	T. D. 1665	Dry
Amerada	3	NEc SW SE 28-5-1	T. D. 1140	Dry
Westheimer	5	NEc NW NW 28-5-1E	T. D. 1536	Dry

Comanche County

Magnolia	1	SEc SW SE NE 30-2-9W	T. D. 2018	75

Creek County

Shaffer	2	NWc NW SW 13-19-8E O.W.D.	2892–2894	20
Gled	3	NEc SE 14-19-8	2900–2911	50
Atlantic	3	C NE SE 14-17-8	2285–2317	18
Tibbens	4	SEc NW NW 13-14-8	2409–2452	45
Gray	1	CWL NE NE 3-18-11	2193–2197	3½M
T. P. C. O.	2	SEc NE SE 21-17-9	2461–2480	15
Shaffer	2	SEc SW SW NW 27-16-9 O.W.D.	3380–3388	10
Phillips	5	NWc SW NW 24-14-9	3039–3049	45
Burton-Holmes	3	SWc NW NE 3-19-9	T. D. 2465	Dry
Lima	1	NWc NE NW 27-17-9	T. D. 3038	Dry
Wright	9	SEc NW SE 24-17-10	T. D. 2436	Dry
Allison et al	1	SWc SE SE NE 8-16-12	T. D. 2450	Dry
Tibbens	1	NEc SW SW 30-15-9	T. D. 3078	Dfy

Garfield County—Garber

Sinclair	20	C SW SW NE 13-22-4W	4385–4400	1746
Sinclair	5	NWc NE NW NE 36-22-4W	2168–2194	85
Roxana	2	C NW SW SW 18-22-3	4272–4320	10,000
Sinclair	18	SWc NE SW NW 18-22-3W	2307–2320	25

Grady County

Stogner et al	2	NWc SW NW 23-5-8W	1330–1400	10M

Hughes County—Holdenville

Gypsy-Houston	1	C SW NW NE 35-8-8E	3255–3265	17

Hughes County—Yeager

Sinclair	1	C SE SW NE 18-8-10E	3442–3447	395
Dixie	2	C NE SE NE 18-8-10	2777–2799	400

Jefferson County

Humble-Hambro	3	NWc SW SW NW 34-6-5W	1215–1236	90

Kay County—N. Braman

White Eagle	1	C SE SW SW 32-29-1W	T. D. 2418	Dry
Comar	5	C NW NW NE 21-29-1W	2074–2090	81

Kay County—S. Braman

Comar	1	C NE SW SW 5-28-1W	2340–2373	5225

Kay County—Thomas

Marland	1	SWc 15-25-2W	4030–4058	6760

Kay County—Tonkawa

Wentz	6	C SE SW SE 28-25-1W	4240–4262	1829
Cosden-Marland	6	C SE NE NE 33-25-1W	4240–4276	2526
Cosden Marland	7	C NE NE NE 33-25-1W	4230–4272	2077

Lincoln County—Davenport

Texas	3	SWc 2-14-5E	3308–3380	425
Twin State	4	SEc NW NW 2-14-5	3281–3372	648
Magnolia	4	SWc NW 2-14-5	3350–3425	450
Magnolia	6	NEc SW NW 2-14-5	3339–3417	850

Okfuskee County

Windsor et al	4	NWc SW SW 22-11-11	2834–2859	212
Burk Greis et al	1	SEc 27-11-10	T. D. 3367	Dry

Okfuskee County—Papoose

Prairie	1	34-10-9E	T. D. 3460	Dry

Okmulgee County

Sheridan et al	1	SWc NE 30-16-11E	2714–2748	70
Paraffine	6	NWc SE NE 34-16-11	1971–1999	15
Iron Mtn	1	NWc SW NW 17-15-12	2170–2191	3M
Magnolia	1	C SW NW 4-12-12	1909–1917	10
Continental et al	2	CWL NW NE 20-12-12	1880–1933	25
Schoenfeldt et al	4	CEL NE SW 4-11-12	1550–1575	20
Lambert	2	CEL NE NE NE 12-13-14	753–773	¼M
Devonian	6	SWc SE 7-15-13	2668–2675	960
Papoose	24	CSL NW SE 21-15-14	2229–2234	10
Gardner et al	1	SEc SW NW 13-14-12E	T. D. 2794	Dry
E. P. Jones	3	SWc NE 6-11-13	T. D. 3255	Dry
Hennessey	1	NWc SW SE 8-15-14 O.W.D.	T. D. 1857	Dry
Acta	1	CEL W½ NW 18-15-14	T. D. 2387	Dry
Laurel	6	NEc SE SE 20-15-14	T. D. 2245	Dry
Texas	17	NEc SW SE 20-15-14	T. D. 2485	Dry

Osage County

Winona	3	CWL SW 21-29-9E	1517–1552	100
Owen Osage	345	NEc NW SE SW 8-27-11E	712–727	2M
Knupp-Phillips	3	NWc SE 3-26-11	1501–1547	22
Lewis	5	SE NW SE NW 29-25-8	2485–2499	145
Texas	2	NEc NW NE SE 29-25-8O.W.D.	2474–2505	20
I. T. I. O.	332	NE SW SE 27-25-11E	1687–1773	3M

Company	Well No.	Location	Depth	Init. Prod.
Pure	3	SW SE NW 15-24-8E	495–511	20
Foster-Norwood	6	NW SE 22-24-9E	2058–2148	20
Texas	3	NW NE SW 22-24-9 O.W.D.	2056–2145	20
Continental et al	5	SE SW SE SW 29-24-9	2491–2518	100
Peters	5	SE NE SE NW 33-24-9E	2134–2189	35
Barnsdall	9	CSL NE 11-24-10	2134–2185	100
Meridian	6	SE NW NW NW 18-22-9E	2316–2319	100
Skelly	5	NW NE NE 2-21-8E	2331–2354	50
Barnsdall	7	NE NW NE NE 10-21-9E	2230–2310	30
Mid-Kans	2	C SE SW NW 11-21-10	2340–2399	75
Tidal Osage	2	NE NW SW 11-21-10	2386–2438	75
Breene et al	11	CSL NW 5-21-11	2307–2336	30
Titus et al	4	SWc NW SW SW 15-21-12	1304–1359	40
Barnsdall	15	SW NE NE SE 5-20-12	1935–2055	30
Gillespie	27	SW NW SE NE 8-20-12	2070–2173	10
Continental	10	NW SW NW 28-20-12	1958–2034	300
Edity	10	CSL N½ SE SW 27-20-11	T. D. 970	Dry
Peters	3	SW NW SE 33-24-9E O.W.D.	T. D. 1636	Dry
Kewanee	23	SWc 28-21-12	T. D. 2477	Dry
Gled	14	SE NW NW NW 11-20-12	T. D. 2050	Dry

Seminole County—Cromwell

Phillips	1	C SE SE SW 32-11-8E	3447–3478	260
Mid-Cont. Pet	5	C SW SE SE 15-10-8E	T. D. 3525	Dry

Seminole County

Independent	1	C SE NE NE 7-9-8E	3277–3299	60

Stephens County

Pauline et al	1	CWL SE NE 2-2-5W	1492–1495	90
Ka Wye	5	SEc SW SE NE	2270–2280	12M
Owl	1	NWc NE 18-1-18W	1833–1840	40
Crump-Beard	3	SEc NE SW 32-1-8W	2016–2019	15

Tulsa County

S. S. Home	1	C SW NW NW 3-19-11E	1877–1883	6½M
S. S. Home	1	NEc NW SE 13-19-11	2120–2180	80
Shaffer	5	NEc SE 6-19-12	2002–2007	35
Winemiller et al	21	SEc NE NE 11-16-12	T. D. 2425	Dry
Superior	3	NWc SW SE 6-16-13	T. D. 2407	Dry

Wagoner County

Sewell	1	CNL SE SW 35-18-16E	T. D. 700	Dry

KANSAS

Barton County

Cheyenne	1	SWc 27-18-12W	T. D. 3525	Dry

Butler County

Marland-Connell	1	SEc NW 12-24-3E	2493–2496	75
Hinkle et al	1	NWc SW 29-26-8E	2691–2717	30
White-Huff	2	SWc NW SE SE 35-22-9	2527–2570	200
Connell et al	1	SWc NW 33-23-3E	T. D. 3070	Dry
Hoyt et al	2	NEc SW SE 21-24-3E	T. D. 2846	Dry
Wilson et al	1	NWc NE SW 21-26-6E	T. D. 2804	Dry

Coffey County

Terrian et al	1	C NE NE 11-20-13	T. D. 1748	Dry

Cowley County

Murphy et al	1	NEc 32-31-3E	T. D. 3537	Dry
Slick	5	NWc SE NE 19-32-3E	2595–2611	262
Hull	9	SEc NE SW 24-32-8E	2330–2356	50

Cowley County—Rainbow Bend

W. Phillips-Marland	2	NEc 19-33-3E	3240–3262	17
W. Phil-Marland	8	SEc NE NE 20-33-3	3200–3229	1240
W. Phil-Marland	1	SWc SE SW 21-33-3	3253–3288	800
Gypsy	1	CNL 21-33-3	3209–3227	464
W. Phil-Marland	4	SWc NW NW 28-33-3	3247–3301	40
W. Phil-Marland	8	NEc NW 28-33-3	3240–3295	50

Elk County

Elk Pet	3	NWc SE 3-30-9E	1053–1059	25
Glaiman-King	1	SEc NW 28-31-9E	T. D. 2666	Dry

Greenwood County

White Eagle et al	1	SWc NW 9-23-11E	T. D. 1990	Dry
Ark. Fuel	1	SEc NE 19-23-13	T. D. 1710	Dry
Parkins et al	1	NWc SW 20-25-11E	T. D. 2073	Dry
Pryor-Lockhart	1	NEc NW 7-23-9	T. D. 2648	Dry
Davis et al	7	NEc SE 12-22-10E	2055–2117	700
Sinclair	26	CSL SW 20-22-10	2275–2346	500
Empire	1	SWc SE 19-22-11	2098–2140	125
Simmons et al	1	NEc NW 19-22-11	2055–2077	100
Phillips	2	SWc 29-22-11	1979–2005	10
Pryor et al	1	NEc NW 30-22-11	2080–2107	125
Greenland	5	NWc NE NE 2-23-8	2460–2503	200
White Eagle et al	1	NWc SW SE 19-23-9	2526–2562	150
Phillips-Skelly	1	NEc SW 20-23-9	2536–2563	75
Derby-Simmons	2	CSL SE SE 36-23-9	2344–2384	30
Roth-Mission	2	NEc SW NE NE 27-23-10	2239–2253	40
Mid-Kans	32	NEc 31-23-10	2296–2355	100
Christy et al	2	SWc SE SE 31-24-13	1612–1617	15

Sumner County

Marland	1	SWc SE 8E 22-34-2	3491–3497	95
Phillips	1	SEc NE 22-34-2	3475–3480	55

best wells in the Mid-Continent field. The company is drilling eight other wells in the field, some of which are due in within the next few days.

Gypsy Oil Co. No. 1 Herbig, in the SWc SE of 15, slightly more than a quarter-mile east of the discovery well, had 1000 feet of water in the hole at 4540 feet, where it got the top of sand. Wentz Oil Corp. No. 2 Thomas, in the NEc NW of 21, a mile and a quarter west of the discovery well, is making about 175 barrels of oil and some water at total depth of 4329 feet. It increased after a 20-quart shot, but soon declined again. Twin State Oil Co. has cemented off the bottom of its No. 2 Silver, south offset to the discovery well, which had dropped down to about 60 barrels of oil and about the same amount of water daily. They hope that when the well is drilled in again through the cement plug, the water will have been shut off. Shelby Oil & Gas Co., No. 1 Herbig, in the SWc NE of 15, is shut own at 4475 feet and will probably be abandoned.

Wells Completed

In Oklahoma, during the week just closed, 96 wells were completed, of which 62 were oil wells, eight were gas wells, and 26 were dry holes. This compares with last week's report, which showed a total of 97 completions, divided 54 oil wells, 12 gas wells, and 31 dry holes.

The 62 oil wells included in this week's report showed a remarkably high average initial production, due to the fact that the Roxana Petroleum Corp's. 10,000-barrel gusher at Garber was included, with several other wells making around 2000 barrels each in Garber and Tonkawa. Their total initial output was 37,231 barrels, giving them the high average of 600.5 barrels per

(Continued on Page 109)

Completions in North Louisiana and Arkansas, Week Ended Sept. 24

LOUISIANA

Cotton Valley

Company	Well	Location	Depth	Yield
Palmer Corp	Davis No. 1	23–21–10	4298	30 m gas

Caddo Parish

Ohio Oil Co	E. K. Smith No. 17	12–21–15	2697	40 m gas

La Salle Parish—Urania

Finn & Ball	King No. 1	25–10–1E	1610	Dry
Love et al	Tremont Lbr.Co.No.2	30–10–2E	1535	salt water
Urania Pet. Co	Urania No. 8	19–10–2E	1580	20

Ouachita Parish

Natural Gas & Pet. Co.	Johnson No. 1	32–20–4E	2165	15 m gas

Jackson Parish

El Dorado Oil Co	J. H. Rhymes No. 1	13–14–4	3505	Dry

ARKANSAS

Stephens

Buffalo Oil Co	Morgan No. 2	22–15–19	2121	junked

Smackover

C. F. Colcord	Laney 3-A	31–15–15	2575	200
Empire Gas & Fuel Co.	Bradley No. 6	30–15–15	2605	50
Giles et al	Neely No. 4	26–15–16	2105	50
Humble O. & R. Co.	Hildebrand No. 7	28–15–15	2440	3500
Humble O. & R. Co.	F.A.& B.T.Laney No. 9	31–15–15	2595	salt water
Marine Oil Co	Snyder A-5	34–15–15	2370	200
Ohio Oil Co	Lewis No. 4	26–15–16	2050	50
Ohio Oil Co	Lewis No. 5	26–15–16	2090	50
Phillips Pet. Co	B. Joyce No. 14	33–15–15	2610	15 m gas
Phillips Pet. Co	B. Joyce No. 16	33–15–15	2585	30 m gas
Phillips Pet. Co	Laney No. 10	31–15–15	2465	junked
Simms Oil Co	Reynolds No. 5	32–15–15	2395	250
Simms Oil Co	Skinner-Berg No. 1	32–15–15	2410	150
Simms Oil Co	Skinner-Berg No. 2	32–15–15	2405	200
Southern Oil Purch. Co.	Joyce No. 4	34–15–15	2350	junked
Texas Oil Co	Berry No. 15	33–15–15	2405	200
Texas Oil Co	E. Johnson No. 9	34–15–15	2530	salt water
Texas Oil Co	Neely No. 5	27–15–16	1980	35
Wilroy et al	Berg No. 1	28–15–15	2570	salt water
Amerada Pet. Co	Calloway No. 6	4–16–15	2625	30 m gas
Amerada Pet Co	Giller No. 5	15–16–15	2730	salt water
R. A. Bristol, trustee	Parkinson No. 1	1–16–16	2575	200
Hickman et al	Graves No. 10	3–16–15	2565	500
Humble O. & R. Co.	Lawton A-4	7–16–15	2685	salt water
Imperial O. & G. Co.	Murphy No. 9	9–16–15	2640	35 m gas
Lion O. & R. Co.	Murphy A-8	7–16–15	2639	75
Lyell et al	Fee No. 4	3–16–15	2365	100
Mazda Oil Co	Lawton R-2	10–16–15	2355	junked
Natural Gas & Pet. Co.	Bilyew No. 5	9–16–15	2535	25 m gas
Penguin Oil Co	Murphy No. 4	8–16–15	2495	200
Phillips Pet. Co	Thompson No. 4	7–16–15	2634	100
Pure Oil Co	Bilyew B-3	8–16–15	2430	200
Standard Oil Co. of La.	Alphin No. 18	3–16–15	2520	salt water
Standard Oil Co	Hardy-Murphp No. 30	4–16–15	2535	40 m gas
Unity Pet. Co	Roper No. 12	3–16–15	2560	300
Weatherbee et al	McGraw B-3	7–16–16	3710	junked
				30 m gas

Completions in North and Central Texas, Week Ended Sept. 26

Archer County

Company	Well—Farm	Location—Survey	Depth	Init. Prod.
F. & H. Synd	6-Wilson	A.T.N.C. 85	1506–1523	150
Lomax et al	4-Wilson	A.T.N.C. 88	1519–1528	25
Wilson Drlg	1-Wilson	A.T.N.C. 85	1509–1523	50
W. Phillips	20-Wilson	B.B.B.& C.	1556–1559	80
Burns-Maxon	9-Wilson	A.T.N.C. 75	1412–1423	50
Perkins et al	5-Anderson	S.A.R. 22	1417–1430	60
Prairie et al	27-Richardson	S.A.R. 1	1310–1324	50
Jones et al	1-Darlick	T.E.L. 1582	1424–1429	100
Texas	9-Hill	T.E.L. 2408	1359–1370	52
Wichtex	1-Jackson	Aldridge 137	T. D. 1651	Dry
Young	2-Carter	A.T.N.C. 96	T. D. 1635	Dry
W. Phillips	10-Wolfe	B.B.B.& C.	T. D. 1450	Dry
Swastika	1-Richardson	S.A.R. 18	T. D. 1460	Dry
Texhoma	4-Portwood	T.E.L. 2411	T. D. 1474	Dry
Texas	9-Richardson	S.A.R. 1	T. D. 1620	Dry
Texas	10-Richardson	S.A.R. 1	T. D. 1400	Dry
Texas	1-Hausler	Poitevant	T. D. 1465	Dry

Baylor County

Maer et al	6-Mills	T.E.L. 2428	1406–1409	60
Pet. Prod	1-Mills	T.E.L. 2427	1406–1407	30

Brown County

Evans et al	1-McDonough	Travis	1213–1219	40
Mook et al	1-Newton	Travis	1326–1362	15
McLester et al	1-Clarke	E.T.R.R. 58	1225–1233	25
Hallmack	1-Hubbard	English	T. D. 1403	Dry

Carson County

Marland	3-Burnett	I. & G. N. 107	2977–3010	650

Eastland County

Mook-Texas	4-Harrell	Willis	3570–3598	20&2½ M
Gallagher et al	1-Woods	Tyler	3068–3074	10
Davidson et al	1-Jones	Richardson	3270–3298	2½M
Brewer	1-Simms	H. & T. C. 30	T. D. 3334	Dry

Gray County

Danciger	1-Bowe s	I. & G. N. 85	T. D. 2998	Dry
Holmes	2-Morse	H. & G. N. 68	T. D. 2780	Dry

Milam County

Simms	1-Stidham	Jones	T. D. 3820	Dry
Magnolia	1-Kime	Carson	T. D. 3876	Dry

Navarro County

Company	Well—Farm	Location—Survey	Depth	Init. Prod.
Humble	24-Davis	Barry	1548–1470	30
Humble	25-Davis	Barry	1549–1488	35
Gulf	5-Hillburn	Hudson	2988–2998	50 & 4M
Marnett	1-Hines	Meader	T. D. 3151	Dry

Stephens County

Magnolia	6-Walker	B.A.L. 27	3070–3407	1½M
Hoffmeir et al	1-Keel	T. & P. 6	3258–3297	175
Carter-Thompson	6-Langford	T.N.O. 1	T.D. 3577	Dry
Dunaway et al	1-Hames	Flores	T. D. 4485	Dry
Carter	2-Pierce	T.N.O. 3	T. D. 3580	Dry
Richeson et al	1-McCleskey	T.P. 41	T. D. 2130	Dry
Gulf Prod	28-Ward	T.E.L. 1235	T. D. 4383	Dry

Stonewall County

Stanton	1-Dudsing	H.& T.C. 656	T. D. 1220	Dry
Rosen et al	1-Dudsing	B.B.B.& C. 29	T. D. 450	Dry

Wichita County

Texhoma	2-Waggoner	B.S.& F. 11	1768–1771	75
Gulf	2-Mitchell	Castleman 11	1306–1310	40
Gulf	3-Mitchell	Castleman 11	1300–1305	7
Ryan	24-Nance	Fowler	T. D. 1882	Dry
Kentucky	1-Kemp	K.V.W. 28	T. D. 1751	Dry

Wilbarger County

Holmes et al	1-Collins	H.& T.C. 7	T. D. 2310	Dry
Roeser-Pend	1-Waggoner	H.& T.C. 49	T. D. 2473	Dry
States	1-Waggoner	H.& T.C. 13	T. D. 2260	Dry
Humble	32-Stephens	H.& T.C. 83	2364–2400	600
Lawson et al	9-Waggoner	H.& T.C. 99	2299–2310	60
Waggoner et al	4-Bond	H.& T.C. 100	1280–1310	100
Landreth	2-Waggoner	H.& T.C. 52	2093–2094	40

Young County

Murchinson-Fain	16-Campbell	T.E.L. 236	958–975	25
Murch.-Fain	18-Campbell	T.E.L. 236	958–990	30
Texas	1-Kilcrease	T.E.L. 1809	1027–1032	18
Lesh-Lehman	10-Kemp	T.E.L. 410	1079–1086	40
Murch.-Fain	2-Hausler	Poitevant	T. D. 1139	Dry
Murch.-Fain	17-Campbell	T.E.L. 236	T. D. 1030	Dry
Murch.-Fain	2-Campbell	T.E.L. 1371	T. D. 1042	Dry
Clarke et al	3-Bishop	T.E.L. 162	T. D. 1055	Dry
Brain et al	1-Vernon	T.E.L. 297	T. D. 1277	Dry
Whitehead et al	1-Belknap	T.E.L. 11	T. D. 4180	Dry
Mission	1-McKeichman	T.E.L. 1654	T. D. 3302	Dry

Farm and Description	Company	Well No.	Oil Prod'n	Water
School Land SE 13-22-4W	Marland-Mid-Continent	41	2,367	9,000
		42	620	4
		43	816	
		45	5,409	
		4 wells	9,220	9,004
Schroeder, SW 18-22-4W	Roxana Petroleum Corp.	1-W	5,213	
		2-W	9,462	
Wolfe, NW 13-22-4W		1-W	436	129
		3 wells	15,111	129
Belveal, NE 24-22-4W	Sinclair Oil & Gas Co.	25	1,672	150
		26	390	109
		30	274	39
Denker, SW 13-22-4W		26	362	110
W. Kisner, NW 19-22-3W		20	2,619	
		21	1,010	
		22	2,396	
N. Walker		20	526	277
		8 wells	9,249	685
Total		15 wells	33,570	9,818
Total, last week		16 wells	34,296	6,974

New Well at Thomas

(Continued from Page 104)

well. Last week, 54 wells brought in 29,170 barrels of new production, with a per-well average of 540.2 barrels.

Completions reported from Kansas this week totaled 38, of which 27 were oil wells, and 11 were dry holes, with no gas wells. Last week, there were 39 Kansas completions reported, divided 20 oil wells, two gas wells, and 17 dry holes. The 27 wells in this week's report had a total initial output of 5573 barrels, giving them an average of 206.4 barrels per well. Last week, 20 wells brought in 4115 barrels of new production, with a per-well average of 205.75 barrels.

Current Production

Oklahoma's production the past week was estimated at 488,260 barrels, a loss of 4960 barrels as compared with the preceding week. The principal factor in this decrease was Tonkawa, which dropped 2440 barrels to 54,140 barrels a day. This production was derived from 771 wells, a loss of 13, a number of old wells having been abandoned. The deep sand had 123 wells making 39,000 barrels daily. Burbank also declined materially, going off 1110 barrels to 51,500 barrels daily. The field now has 1793 wells, a loss of one as compared with the preceding week. The Osage county side of the field has 1598 wells producing 41,825 barrels daily, while the Kay county district is producing 9675 barrels from 195 wells.

Braman and Blackwell averaged 23,025 barrels daily the past week a loss of 355 barrels as compared with the week before. Of this amount, about 2500 barrels is credited to the old Blackwell field, the remainder being both Braman fields, the north Braman and the townsite pool. North Braman had 23 wells, a gain of one, and averaged 2165 barrels daily, a loss of 105 barrels. Braman proper had 15 wells, a gain of one, and averaged 18,951 barrels daily. Cromwell added one new well, bringing its total to 411, and declined 630 barrels in production, averaging 27,530 barrels daily.

Davenport showed little change over the week, going up 250 barrels to 16,020 barrels daily. This was derived from 50 wells, a gain of two. Papoose, with 207 wells, a gain of one, lost 140 barrels in production, averaging 14,380 barrels daily. Thomas added one well, making nine in all, including the older shallow wells, and gained 890 barrels in output, showing a daily average of 10,710 barrels. Wewoka had 143 wells, the same as the preceding week, and stood almost stationary in production, going off 75 barrels to 11,205 barrels daily.

Yeager, north of Holdenville, had nine wells, the same as last week, and averaged 1445 barrels daily, a loss of 225 barrels. Holdenville, in 35-8-8, the graveyard of many hopes added two wells for a total of 10, but made only 611 barrels daily, a loss of 150 barrels. Hubbard, northwest of Tonkawa, had 24 wells, the same as the week before, but added 509 barrels for a daily average of 2318 barrels. Watchorn added one well, making 22 in all, and averaged 8548 barrels, a gain of 115 barrels. Stroud's 70 wells were unchanged, while its production was 3995 barrels, a gain of 13 barrels over the preceding week.

Cape Cod Company Buys in Mass.

NEW YORK, Sept. 24.—The Cape Cod Oil Co., with headquarters at Hyannis, Mass., and bulk stations at Buzzards Bay and Harwich, Mass., recently purchased the business formerly operated by Leon L. Purkis, of Wareham, Mass.

The Cape Cod company, of which F. H. S. Hyde is president and E. W. Gould, Jr., treasurer, will distribute products of the Tide Water Oil Co., New York, including Tydol Economy gasoline, Veedol motor oils and greases, kerosenes, and industrial oils, according to G. M. King, editor of "The Spade," the Tide Water's house organ.

Mr. Gould, previous to the organization of the Cape Cod company which he helped to organize, was with the export advertising department of the Tide Water Oil Co. in New York.

Head of Texas Jobbers N. P. M. A. Director

CHICAGO, Sept. 26.—R. N. Mullin, president of the Calumet Oil Co., El Paso, Texas, has been appointed a director of the National Petroleum Marketers Association. He is regarded as a strong organization man, being the president and most active individual of the Texas Independent Oil Men's Association, a director of the El Paso Chamber of Commerce and active in other organizations.

His Texas association has announced a meeting at Houston on Oct. 23, at which one of the main topics will be the new quantity discount agreement being offered gasoline retailers and big users in Texas by the Magnolia Petroleum Co., the dominating market factor in that state. This situation the Independent jobbers know they will have to meet in some way and they consider they can make a better job of it by acting collectively than by letting each man work out his own system in his own way.

Municipal taxes on gasoline also are being proposed by politicians in Texas and will come in for discussion at the meeting. The city of Fort Worth is now proposing a tax of a half cent a gallon on its motorists. The oil men feel pretty lucky with regard to socialistic legislative measures. Texas is fundamentally unlike the states of the northwest. It is conservatively democratic. Texas oil men defeated a 3-cent gasoline tax bill at the last legislature.

Not least of the problems to be discussed at the Texas convention is that of L. C. L. freight rates on petroleum products in Texas. Mr. Mullin makes the following comparison of rates in Texas and in Oklahoma:

Miles	Oklahoma	Texas
100	$ .37	$ .55
150	.47	.70½
200	.57	.82
250	.69	.93
300	.78	.97½
400	.91	1.08
500	1.03	1.18½

Big Lake Wells Flow From Upper Sand

N. P. N. Fast Wire

HOUSTON, Sept. 28.—Three wells previously making gas at the 2400-foot level in the Big Lake field of Reagan county are now showing oil. Two of them are the Big Lake Co.'s No. 21 and No. 27, which are flowing respectively 500 and 700 barrels daily. No. 43 is showing oil at this level but has not been placed on production. The horizon from which this oil comes is about 500 feet above the regular Big Lake pay of earlier wells.

Crude Production by Districts

OKLAHOMA

	Sept. 26	Sept. 19
Cushing	22,700	22,700
Yale	7,250	7,250
Davenport	16,050	15,800
Jennings	3,250	3,250
Garber-Billings	39,100	40,850
Tonkawa	54,150	56,600
Blackwell-Braman	23,050	23,950
Thomas	10,750	9,850
North Okmulgee	17,200	17,300
Burbank, Osage county	51,550	52,800
Osage, outside Burbank	34,000	34,650
Healdton	15,300	15,250
Hewitt	14,200	14,350
Duncan	6,500	6,500
Lyons-Deaner	4,400	4,550
Bristow	31,350	31,100
Wewoka	11,250	11,300
Cromwell	27,550	26,950
Graham	9,800	9,850
Stroud	4,000	4,150
Papoose	14,400	14,550
Watchorn	7,500	7,350
Fox	3,900	3,900
Others	59,350	59,150
Total	488,550	493,950
Decrease		5,400

* * *

KANSAS

	Sept. 26	Sept. 19
Eldorado-Towanda	14,600	14,500
Augusta, Fox Bush	5,550	5,500
Peabody, Elbing	5,100	5,250
Florence, Covert	1,900	1,900
Rainbow Bend	9,450	9,850
Others	74,700	74,550
Total	111,300	111,500
Decrease		200

* * *

NORTH LOUISIANA

Homer	6,250	6,250
Haynesville	12,400	12,400
Caddo, light	9,000	9,000
Caddo, heavy	2,050	1,950
De Soto, Red River	4,100	4,100
Elm Grove	550	500
Bellevue	2,900	2,900
Cotton Valley	10,500	10,700
Total	47,750	47,800
Decrease		50

* * *

ARKANSAS

	Sept. 26	Sept. 19
El Dorado	8,850	8,800
Smackover, light	25,950	25,200
Smackover, heavy	174,400	181,600
Stephens	1,800	1,800
Nevada	1,350	1,400
Total	212,350	218,800
Decrease		6,450

* * *

TEXAS AND COASTAL LOUISIANA

Mexia, Currie, Richland	23,180	23,101
Corsicana, Powell	42,200	42,600
Wortham	21,850	22,100
Wichita Falls district	83,490	83,200
Ranger, lime	23,445	23,435
Ranger, sand*	20,485	20,645
W. Texas: Mitchell, Reagan and Scurry counties	33,465	37,825
Panhandle	4,290	4,350
San Antonio, Luling, Mirando	45,360	45,690
Coastal Texas	86,490	87,260
Coastal Louisiana	8,960	9,040
Total	393,215	399,255
Decrease		6,040

*Includes Young, Shackelford, Brown, Coleman, Callahan, Palo Pinto and Jack counties.

* * *

CALIFORNIA

Decrease		8,000
Total	653,000	661,000

ROCKY MOUNTAIN

Wyoming

	Sept. 26	Sept. 19
Salt Creek	67,480	68,640
Teapot	1,580	1,660
Big Muddy	3,400	3,015
Grass Creek	3,700	3,990
Elk Basin	875	1,010
Rock Creek	2,940	2,940
Poison Spider	1,000	1,200
Lost Soldier	5,430	5,980
Others	2,500	3,485
Total in Wyoming	88,905	91,920

Colorado

Craig	2,140	2,215
Fort Collins	1,140	1,280
Others	505	510
Total in Colorado	3,785	4,005

Montana

Cat Creek	2,875	3,100
Kevin-Sunburst	9,500	11,500
Total in Montana	12,375	14,600

New Mexico

Artesia	3,000	2,900
Rattlesnake, Hogback	995	960
Total in New Mexico	3,995	3,860

Recapitulation

Miscellaneous	200	200
Wyoming	88,905	91,920
Colorado	3,785	4,005
Montana	12,375	14,600
New Mexico	3,995	3,860
Total	109,260	114,585
Decrease		5,325

* * *

EASTERN

(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	107,000	107,500
Decrease		500

* * *

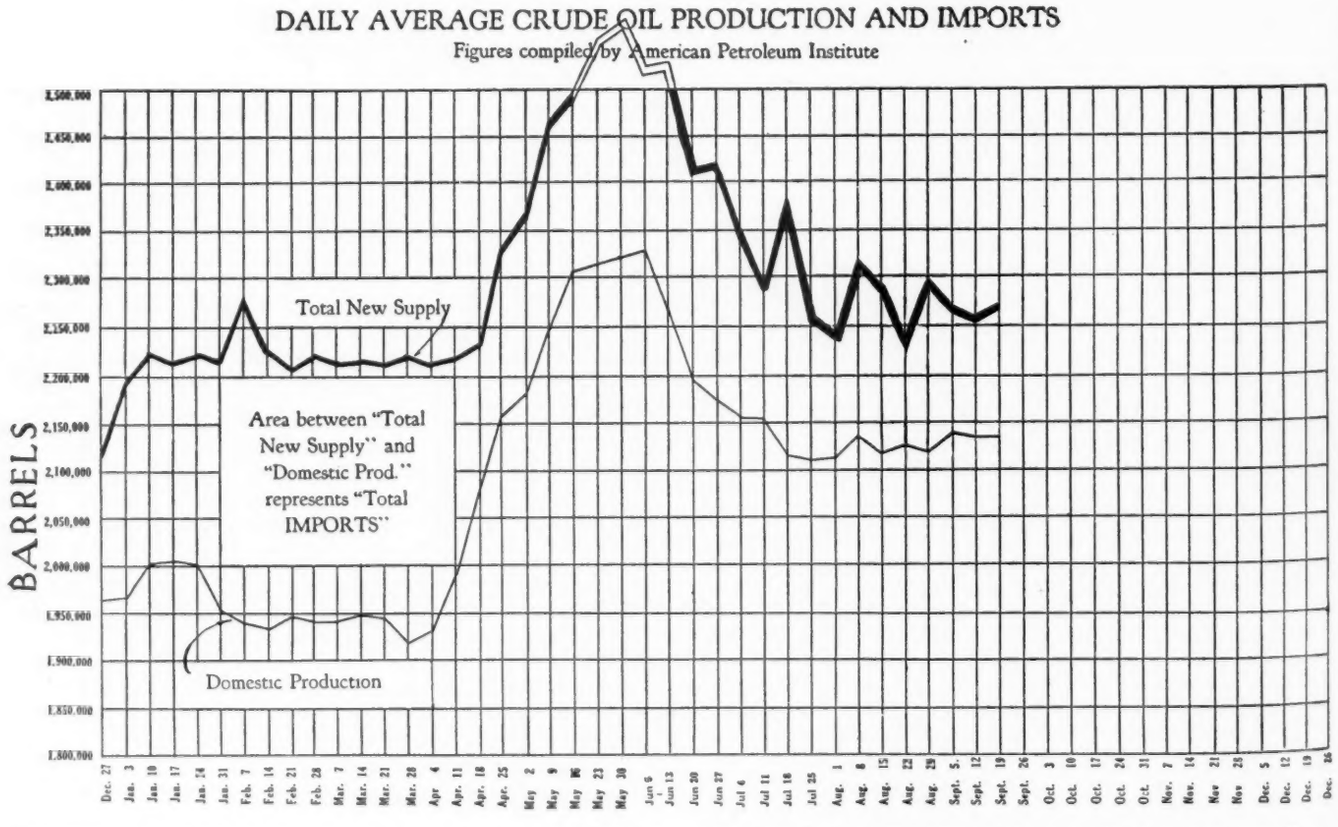
Production east of Rockies	1,469,425	1,493,390
Decrease		23,965

* * *

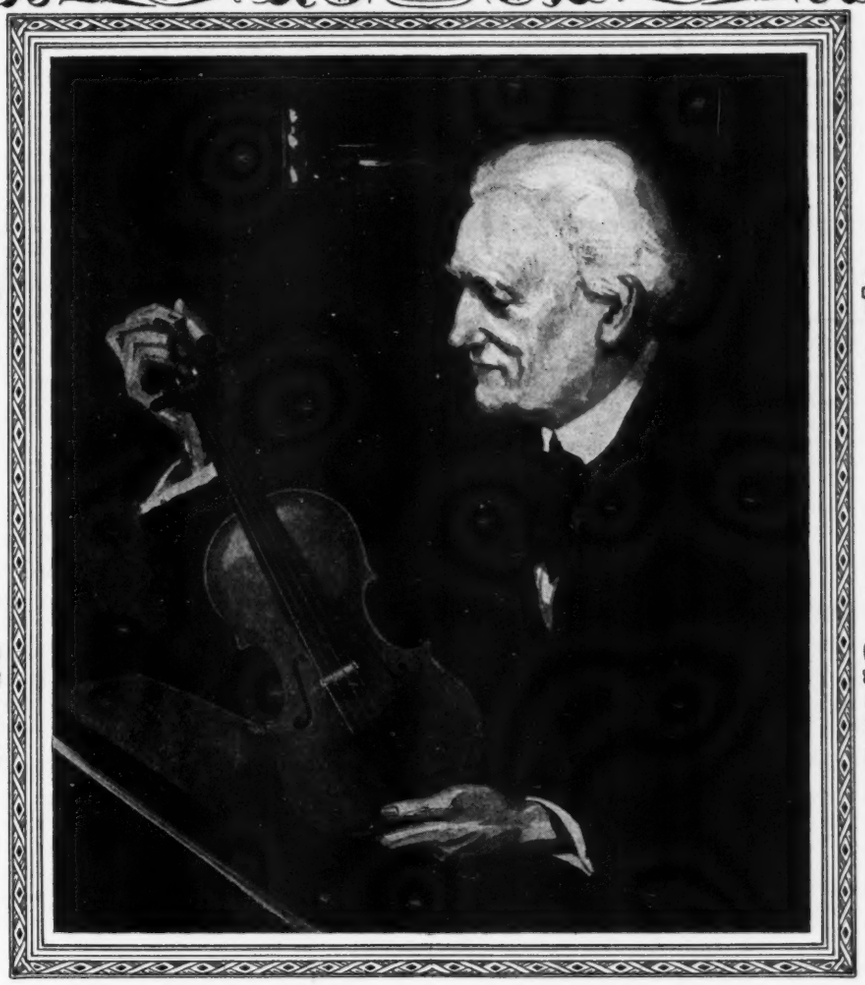
Total Production in U. S.	2,122,425	2,154,390
Decrease		31,965

DAILY AVERAGE CRUDE OIL PRODUCTION AND IMPORTS

Figures compiled by American Petroleum Institute



This chart is based on official complete figures of the A. P. I. and is a week later than the production estimates given in tabular form above.



Tone and Power *Must* Depend Upon Quality

Pure tone results only from pure quality The violins of Stradivarius have never been excelled or equalled for purity and richness of tone. Stradivarius stands out in all history as the supreme craftsman of violin quality. There is no substitute for Stradivarius Violins.

Power, as applied to the automobile of today, is the direct result of energy or strength derived from gasoline. This cannot reach the maximum of performance unless pure quality is the source. It is impossible to substitute for the Purity and Quality of Miller's PEERLESS 64 Gasoline.

Any and every car runs better with—

Miller's Peerless 64 GASOLINE

Doctor Test and Corrosion Test. Its crystal clearness signifies its real Purity.

When you sell satisfaction, it soon becomes a regular habit and profitable.

SUPREME IN QUALITY AND MUST BE SOLD AT A PREMIUM

MILLER PETROLEUM CO.
Mail Address, P. O. Box 1133, Kansas City, Mo.

Date _____

Gentlemen. Send particulars of Miller's PEERLESS 64 Gasoline, also state exclusive advantages and benefits offered by you to recognized jobbers.

Name _____ *Town* _____

Address _____ *State* _____

We operate ☐ *Bulk* ☐ *Service Stations*

(Use your regular business stationery and if possible give us full information about local conditions.)

PROFESSIONAL CARD DIRECTORY

The Cost is small

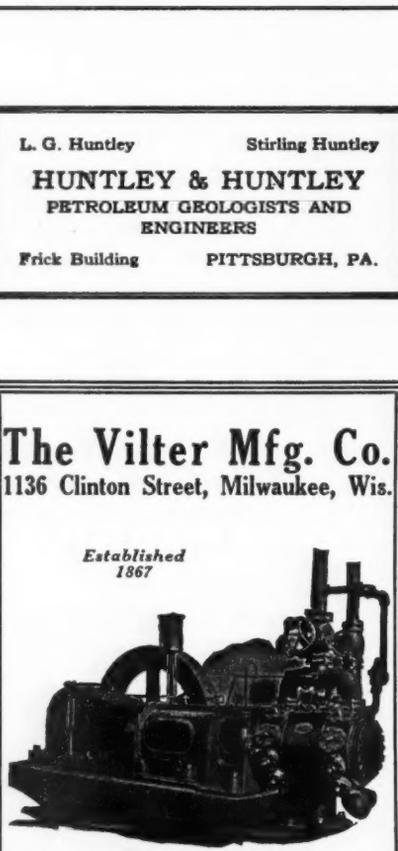
1-inch card $25 a quarter in advance—$100 a year for 26 issues. 2-inch card $50 a quarter in advance—$200 a year for 26 issues. Larger space increases proportionately. Single insertion rate $5.

W. L. GOMORY
Chemical Engineer
Consulting Petroleum Technologist
Inventor Gomory Cracking Process
Licenses Solicited
Refinery Design
Peoples Gas Bldg. - Chicago

L. G. Huntley **Stirling Huntley**
HUNTLEY & HUNTLEY
PETROLEUM GEOLOGISTS AND ENGINEERS
Frick Building **PITTSBURGH, PA.**

The Vilter Mfg. Co.
1136 Clinton Street, Milwaukee, Wis.

Established 1867



Vilter High Speed Refrigerator Machine

Oil Refinery Equipment
Refrigerating Machinery
Oil Cooling Coils and
Gasoline Condensers

We will gladly figure on your requirements

Branch Offices in All Principal Cities

Tubular Goods Less Active but Orders Stack up Well

PITTSBURGH, Sept. 29

TUBULAR products orders from oil country jobbers are not so numerous as they were a few weeks ago but the weekly aggregate is high. This is typified by the way mill operating schedules continue at an 80 or 85 per cent rate and also by the way deliveries on lapweld pipe, casing and such are becoming more and more deferred. It is becoming impossible to obtain shipping notices within two or three weeks of filing the order and on some of the more popular size deliveries are even more tight.

Jobbers in the oil country continue to order a single carload or two at a time, to keep their stocks well balanced and from time to time order one to three carloads for shipment direct to the oil location. It now appears that the order for 57 miles of 8-inch pipe for installation in Kentucky, which was before the Pittsburgh, Wheeling, W. Va., and Youngstown, O., pipemakers for several weeks last summer, will not now be placed until spring. This inquiry was put out by the Petroleum Exploration Co., Sistersville, W. Va.

The feature of the plate market is the order for 1500 tons involved in seven oil storage tanks for the Pan American Petroleum & Transport Co., placed with the Riter Conly Co., Pittsburgh. Plate prices do not as yet partake of the strength noticeable in other steel products. While in the eastern market prices as low as 1.70 cents have been done, at Pittsburgh, 1.80 to 1.90 cents are quoted. At Chicago a 1500-ton inquiry is out for oil storage tanks at San Pedro, Calif., and an additional 500 tons will be required for tanks in Texas.

The Standard Oil Co. of New York is building at its Atlas plant at Buffalo. The 200 tons of concrete bars needed have been ordered from Buffalo fabricator. Concrete bars are quoted at 1.90 to 2.00 cents, Pittsburgh.

Vacuum Oil Co., 61 Broadway, New York, awarded the general contract to the White Construction Co., Philadelphia, for a 3-story storage and distributing plant, including barreling works for export service at Paulsboro, N. J. It will cost $100,000 with equipment.

The Standard Oil Co. of New York recently awarded a general contract to Alexander, Shumway & Utz, Rochester, N. Y., for a 3-story storage and distributing plant, 66 x 100 feet, at Rochester. It will cost $85,000 with equipment.

The Standard Oil Co. of Indiana, plans a storage and distributing plant at Peoria, Ill., including power house, pumping station and garage, to cost $175,000 with equipment.

The Pennsylvania Petroleum Co., North Kansas City, Mo., has authorized the immediate rebuilding of the portion of its storage and distributing plant and laboratory recently destroyed by fire.

The Oklahoma Pipe Line Co., Chickasha, Okla., a subsidiary of the Standard Oil Co., of New Jersey is considering the construction of a pipe line in the Carter-Knox oil fields in Grady county. About $100,000 will be expended.

The Ozark Pipe Line Co., subsidiary of the Shell Union Oil Corp., is planning for extensions of its power house with improvements including the installation of a steam unit.

Indian Refining Co., Lawrenceville, Ill., is arranging for a storage and distributing plant in Indianapolis to include a machine shop, automobile service and garage building and paint shop. It will cost $85,000.

Magnolia Petroleum Co., Dallas, Tex., is expected to rebuild at once the part of its storage and distributing plant at Electra, Texas, destroyed by fire Sept. 11.

The United North & South Oil Co., Inc., Luling, Tex., recently authorized the electrification of its properties on both sides of the San Marcos river. It will install machinery to replace all present gas engines and auxiliary equipment. The company also will soon decide whether to construct a generating plant or to use central station service, with local automatic power sub-station. The project will involve the expenditure of $150,000.

The Pierce Petroleum Corp. has tentative plans for the extension and betterment of its refinery at Fort Worth which has been inactive for several months. It purposes to install cracking units and other new equipment.

Utah Refining Co., Salt Lake City, Utah, plans the reconstruction of its power house in connection with the rebuilding of a refinery destroyed by fire Sept. 5.

The Marland Oil Co. is understood to have plans for extensions and betterments at its works at Ponca City, Okla., to include the installation of four water-tube boilers, each 550 horsepower rating; automatic feed water regulators, additional filters, tanks etc. designed to double the present plant output.

The Mexican Petroleum Corp. has under way an asphalt refining plant near Curtis Bay, Md., estimated to cost $1,000,000 with machinery.

The Sinclair Refining Co. is said to be planning for a new oil storage and distributing plant at Macon, Ga., to cost $75,000 with equipment.

Kent & Middleton, Corsicana, Tex., have acquired the refinery of the Owens Refining Co. Ardmore, Okla. at Rockdale, Tenn., for $100,000. Plans are under way for the installation of improved equipment.

Good Results Can be Had From "Ads" In Small-Town Newspapers

By M. R. Tennerstedt
Chicago Dealer in Gasoline and Oil

CHICAGO, Sept. 24

WHETHER a jobber sells only through retail dealers or to the consumer direct through his own stations, or both, there is a certain possible gallonage in whatever merchandise he handles. Wide-awake jobbers are interested in whatever means are available to swing more of this business their way. It is not necessary to preach advertising to such men. Most of them advertise now and have advertised for years. Rather the question is "How can this advertising be made more effective?"

The correct place to go for new business is to the consumer, to the place where demand originates. The consumer of gasoline is a high-class individual as a rule; not necessarily rich nor of the high-brow type, but prosperous and intelligent and able to reason. To have a high-grade salesman call on all your prospects and sell them on the merits of your merchandise is patently too expensive for consideration—yet it is in harmony with the basic idea of oil advertising, for advertisements must do what the salesman would do if he were on the job.

A cheap mediocre salesman could not sell the quality of your oil to an intelligent customer. Neither will cheap mediocre advertising deliver the message. Motor fuel and lubrication are commodities that do not permit of mediocre merchandising. Any oil dealer can get a certain amount of gallonage accidentally but to fix a purpose in the minds of a thinking trade to buy your products from preference, requires salesmanship. To move a quality product requires quality salesmen and quality advertising.

Knows Both Jobs

"The title of this article should be 'How to Advertise Oil, Told By One Who Has Never Done It'", remarked M. R. Tennerstedt when he sent in the accompanying story. But such a title would not be fair to the story, for the writer understands advertising and he also knows his petroleum.

Mr. Tennerstedt is in the oil business on the West Side of Chicago in a small area. It is a young business being carefully built up. He does not advertise because space in any Chicago paper would cost hundreds of dollars and be read mostly by thousands of people who have not seen, and may never see, one of his pumps.

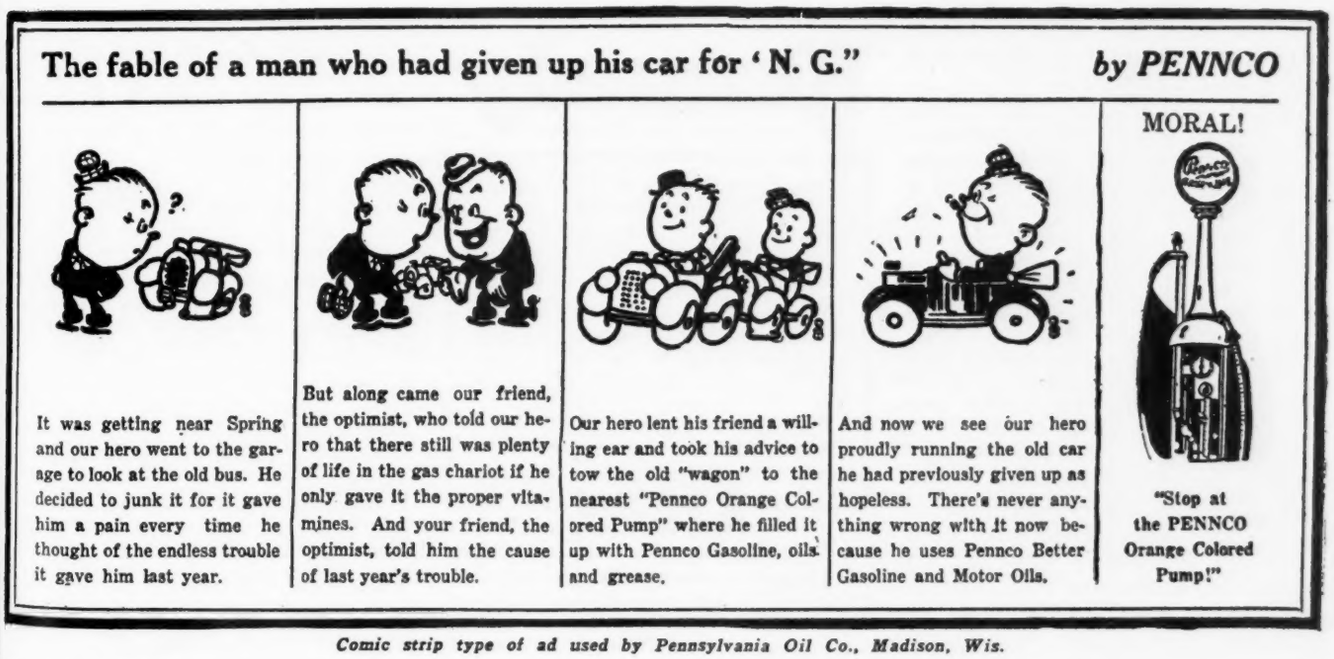
His knowledge of advertising came another way. For a long time he was identified with one of the large advertising firms. He has worked on oil accounts. He did not write this story out of the back of his head but from experience acquired in both the oil and advertising business.—Editor.

The jobber who sells through dealers is always looking out for new dealers who are alive and progressive to handle his merchandise and push it, but such dealers are scarce. Frankly, how many of your garage and pump resale agents would you trust to tell the full story of your quality merchandise? They can put your gasoline in the automobiles of your customers; they can turn the fruit jar bottom-up and put in the oil, and they can be pleasant and obliging about it. That is about all that can be expected.

There are Exceptions

Of course, there are exceptions enough to prove the rule in this matter. Nearly every jobber has a garage customer he would like to hire on his own sales force, but they are scarce and worth keeping as wholesale customers. They are too few in number to put over your big idea to a whole community. The whole matter reverts back to advertising, a means of reaching the consumer. And when you sign a contract with a newspaper you have done nothing but buy white space.

After all it does not matter how good a sales organization an oil jobber may have, or how good his dealers are, it is still important to augment its selling effort with advertising to the actual consumer. No resale agent can buy from the oil man more than he is able to sell to the public, and his contact with the public is at the dispensing pump. That is an important contact


The fable of a man who had given up his car for 'N. G."
by PENNCO
It was getting near Spring and our hero went to the garage to look at the old bus. He decided to junk it for it gave him a pain every time he thought of the endless trouble it gave him last year.
But along came our friend, the optimist, who told our hero that there still was plenty of life in the gas chariot if he only gave it the proper vitamines. And your friend, the optimist, told him the cause of last year's trouble.
Our hero lent his friend a willing ear and took his advice to tow the old "wagon" to the nearest "Pennco Orange Colored Pump" where he filled it up with Pennco Gasoline, oils and grease.
And now we see our hero proudly running the old car he had previously given up as hopeless. There's never anything wrong with it now because he uses Pennco Better Gasoline and Motor Oils.
MORAL!
"Stop at the PENNCO Orange Colored Pump!"

Comic strip type of ad used by Pennsylvania Oil Co., Madison, Wis.

but it does not get new business. Advertising brings business without increasing overhead while multiplying dealers may increase business but with relatively increased overhead.

To the rural jobber, this newspaper advertising problem is a hard one. How are results to be obtained? How can results be determined or even estimated? What are the things to think about in trying to get results that are satisfactory? Many small town jobbers are their own advertising managers and they have plenty of other things to think about.

There are several advertising advantages which a national advertiser has over a local business man, but in one important respect the local dealer has big business "backed off the board"—that is the selection of media. The small town jobber knows exactly what paper he wants to advertise in, and he knows why. His home-town paper likely is read by nearly 100 per cent of his customers and prospects; it is read by more of them than any other paper, and it is read more carefully than any other paper. Last but not least, it is not read by too many who can not buy his gasoline so he gets the benefit of all the advertising he buys.

The oil jobber whose business is in a small town near a big city is at a disadvantage. If his home town has a paper at all it is often not read by the townspeople, because they read the papers from the nearby city. And the rates of the city paper are too high for the suburban jobber, compared with the number of its readers who are his prospects. But that is slightly off the subject.

The small town advertiser has his disadvantages too, no matter how far it is to a big city. One of them is the fact that his advertisements do not take hold of the trade. Too many of them fall flat, no matter how much time and thought he gives them. That is not always the oil man's fault either. The newspapers themselves are not all that could be hoped for, and the task is to make the most of it.

The oil man, who is a good citizen, may wish he could improve the newspaper in his town, but his best means of doing that is to patronize it; then it can improve itself. What he has to work with is a certain amount of white paper being distributed regularly to a known number of people per issue. It is altogether up to the buyer of the space to get the greatest possible results from it. The methods of getting results may best be discussed separately and in the order of their importance. The first thing to think about is "Copy".

Compare this copy to a salesman. When a salesman interviews a prospect his first idea is to impress the prospect that he has something of great merit to warrant his consideration. He can display the goods and point out its qualities. He can watch the prospect and sense his reactions, and in that way know what points to stress in pushing the sale.

In writing a piece of "ad" copy however, the prospect is not present. His reactions can not be observed. The copy must do substantially the same thing that the salesman tries to do, i.e., put across a convincing line of thought, create a demand and get business. But the advertising copy is necessarily limited to a direct statement of the value and merits of the merchandise, with no words (for or against) from the prospect. Therefore, whatever is in the copy must sell, in itself alone. It must be a complete argument and leave no doubts in the reader's mind.

Getting the reader's attention is the first thing. That is the sole function of the heading, or the first line of the copy. It is the first thing read and there must be something about it to make the person holding the paper, read it. It is printed in bigger type than the rest of the copy usually, as a means of effecting easy visibility. It must have popular appeal. It is the entering wedge of the sales argument, so in the heading must be something to impel the prospect to read on. The copy must be so connected as to make him read the whole advertisement.

It may be possible to sell oil with one heading. Some successful advertisers get results simply by keeping the name of their product and that alone, perpetually before the public. It is effective and not to be discounted, but it has the disadvantage of being slow and costly. It is rather a means of keeping old business than of getting new, especially when considered in connection with the oil business, for petroleum is a technical subject to teach to the public, and it usually is best to continue the sales matter in the body of the advertisement. It is important to tie up the headline with the rest of the copy so as to make a connected story throughout.

Kennedy

Your Motor Is Only as Good as the Gasoline You Use!

No matter what kind of a car you drive you can not possibly get full power unless you use the best grade of gasoline. Power, you know, comes from evaporation in your carburetor and combustion of the gas in your cylinders.

KENNEDY 58-60 New Navy Gasoline, due to its special refining process, is free from gaseous solids. Its evaporation is complete and its ignition is instant, leaving your spark plugs clean and dry. There is no sediment or residue and its combustion is remarkably powerful. It is the only Straight Run gasoline sold in this community.

The cost of KENNEDY Gasoline is no higher than you have to pay for inferior grades, and you get considerably more mileage.

If you have never used KENNEDY Gasoline, drive around and find out for yourself.

A Superior Greasing Service

At our station one block north of the Square we have an inside capacity for greasing and changing the oil in two cars at a time. This is a complete service of greasing and lubricating, including the Alemite system.

Our man in charge of this work has had long experience in lubricating work and is unusually conscientious in his work.

Knowing the importance of efficient lubricating, we are now offering a greasing service whereby, for a stipulated cost, we will take care of the complete greasing of a car every 500 miles for one year. This is a very valuable service to car owners. Ask us about it.

Our lubricating oils are pure paraffin base products. We also handle Valvoline for those who prefer a Pennsylvania Oil.

ADOPT KENNEDY OILS A CAR TO YOU

No charge for changing oil in intake case

Galesburg Monmouth
St. Augustine Williamsfield

Oils

We are a Home Company and every dollar spent with us remains to be respent in the local community

Telephones: Main 3484 and Main 4484

This type of ad copy keeps the name prominent and still talks about the quality of the gasoline sold.

The small black-and-white "ad" on this page is a sample of connected copy. It is not presented as a model piece of advertising, but is used simply to illustrate the "carry through" idea in writing a simple piece of advertising matter.

THE PRICE OF GASOLINE today is the same as it was yesterday but in the use of "Smith's High Test" you get added power and mileage. That is the reason our stations are popular.

May we serve you today?

Bill Smith Oil Co.

Technical copy men tell us the essentials of a good advertisement are (1) it must attract attention (2) the copy must sell and (3) the illustration must leave a lasting idea.

In many advertisements the attention of the reader is caught with a picture, but that comes under another subject. As far as the copy is concerned, attention must be obtained with the headline. That heading should be of common interest. It should attract motorists and those who are not. The body of the copy may be more of a character to single out a particular class but the heading should be attractive to anybody.

Must Have an Appeal

It does not matter so much what human emotion the heading appeals to, just so it appeals. It can challenge the motorist to find a better oil than yours, or accuse him of using an inferior one. It can create doubt in the minds of the readers as to the quality of their gasoline; observe the advertisement of the Kennedy Oil Co. of Galesburg, Ill., which is reproduced herewith. With that piece of copy Mr. Kennedy builds up a suspicion in the mind of the readers by saying in his heading "Your motor is only as good as the gasoline you use." Furthermore, it should be observed that Mr. Kennedy keeps his name prominent. If he can help it, nobody will forget who sells the good gasoline he is talking about.

The importance of this feature of his advertising can be understood when it is known that there are 28 drive-in filling stations in Galesburg, a town of 30,000 people. That figure does not include curb pumps, of which there are 25 more. It goes without saying that competition is keen in that town and individuality of product is important.

There is a great deal to be said about gasoline and lubricating oil, so the reader must read the whole advertisement if he is to get the whole story. For this reason the copy must tie up nicely with the head line; it is well even to have it flow from the head as in the little illustration used above.

The interest created by an advertisement should be a general interest and not absolutely a specific one, although

CORRECT MEASURE VISIBLE ELECTRIC PUMPS

MODEL 10-H

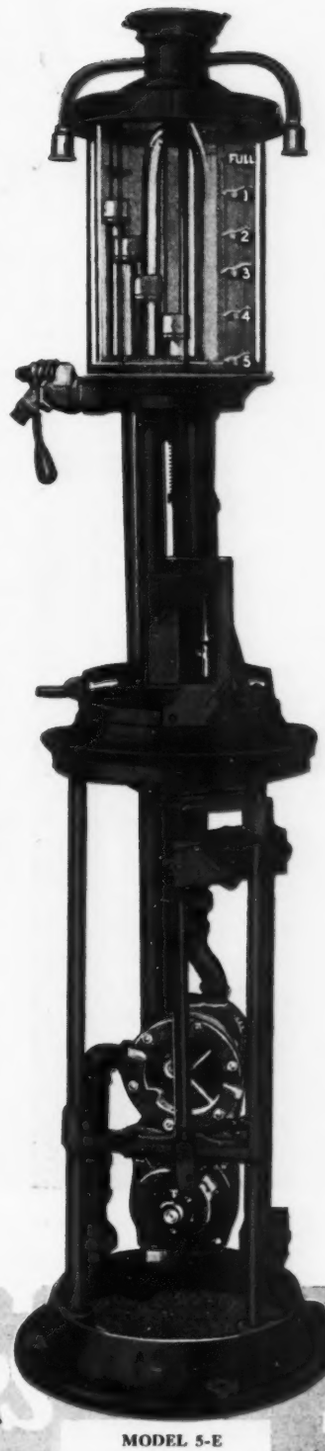
Correct Measure Visible Electric Pumps Assure Quick Service and Honest Measure

SIMPLICITY: To make a sale, the attendant slides the measuring handle to the slot corresponding to the gallons desired—then fills the glass container.

EASE OF PUMPING: He pulls down a trigger or switch and holds it, while the container fills.

SPEED: In 11 seconds, if it's a five-gallon pump, and 22 seconds if a ten-gallon pump, the glass container is full. Next the attendant opens the 1¼" discharge valve and the gasoline flows through the hose into the customer's tank. No eye measurement, no human equation. Every step mechanically correct. All measurements are calibrated, checked and sealed before pumps leave the factory.

Best of all, **CORRECT MEASURE VISIBLE PUMPS**—electric and hand-driven—enable station owners to sell at least 20% more gasoline. Here is the reason: Motorists, to avoid spilling, invariably call for less than their tanks will hold. When they see the tank will accommodate more they will take it if the gasoline is ready to be delivered.



MODEL 5-E

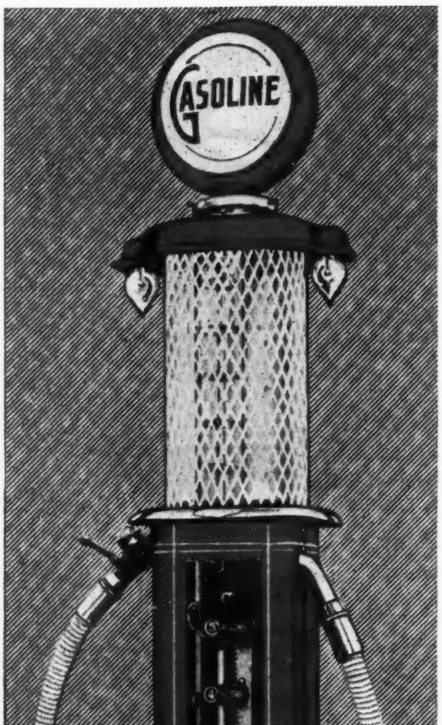
CORRECT MEASURE VISIBLE PUMPS are always ready with the extra gallons. Each sale starts with a full container—five or ten gallons—and measures from the top down. If there is any gas remaining in the glass container after the customer's order has been delivered, and his tank will hold it, on suggestion of the attendant the customer says "fill it up."

If you visit the International Petroleum Exposition, Tulsa, Okla., October 1st to 10th, be sure to call at Booth 85, and see a Correct Measure Visible Pump in operation. Or write us for a catalogue which explains in detail many of the Correct Measure Visible Pump's improvements.

CORRECT MEASURE COMPANY
ROCHESTER, PA.

CORRECT MEASURE PUMPS

Shotwell
BALL BEARING
Pumps



5 and 10 Gallon Capacities

Fills in seven seconds—
Drains in ten
That's Why
"We fill and spill
While others fill"

SHOTWELL PUMP & TANK CO.
Boston - - - Indianapolis

the advertiser is trying to sell a specific product. Copy can have to do with recent happenings of interest provided they can be made to apply. And whatever the interest is, it must be held to the very end of the copy. An ideal "ad" would be so interesting and so easy to read and reasonable that a person who never owned an automobile in his life with no use for gasoline would read it through to the last word and believe it.

There are innumerable ways that copy can be varied, but one of the chief purposes of varying oil and gasoline advertising is the fact that two kinds of trade, most sought after, must be reached in different ways. It takes a different kind of copy to appeal to a pleasure motorist, from that which will attract a truck fleet operator.

In this connection the question of a medium comes to mind. Copy written to truck fleet operators should deal with matters of power and economy. Copy to the pleasure motorist should deal with quick response and even performance. Both buyers are interested in the life of the motor. But possibly both parties should not be approached through the same paper. Truck fleet operators usually are men; their spare time comes at night, so an afternoon paper is their printed medium. Many pleasure car drivers are women; their spare time comes in the forenoon, so some of the pleasure car copy should run in morning papers.

While discussing media, it is well to say a word about Sunday papers in small towns. Sunday, in a small town is a fairly active day for many people, while city folks are disposed to stay at home and rest and kill the time. City Sunday papers are desirable media and they are big and full of interesting art and fiction, while small-town Sunday papers are not so elaborate. Small town people buy the city Sunday papers although they don't read them during the week. Often good newspapers in small towns do not publish on Sunday at all. Of course, some small-town papers get out a good issue on Sunday which is read extensively, but the point will do to investigate.

All the other essentials of good advertising are valueless without copy that will hold the reader's attention until the story has been told. While good copy is perhaps the most important unit of a "selling advertisement" there are others just as important in their respective functions. Possibly second in importance is "Layout" which includes pictures and illustrations.

KANSAS CITY, MO.—A modern service station was opened for business recently by Dan Scott at Horton, Kan. Mr. Scott handles products of the White Eagle Oil & Refining Co. exclusively, supplied by the Angelo Oil Co., according to E. B. Kendrick, manager of the lubricating department of the White Eagle at Kansas City.

Pictures in an oil advertisement should help the copy and not dominate it. The oil man's argument is almost altogether in cold type. A clothing dealer can make his pictures sell his goods because, in plain black and white, he can show the shape and something of the texture of his merchandise, but an oil man can't do that. A national advertiser in magazines can show the color of his oil, but even that is out of the reach of the small-town jobber. He must be the judge of the importance of his illustrations, guided by the fact that they are largely to attract attention.

Pictures must tie up with the wording of the advertisement. They must be on the same subject at least. The picture of a pretty girl might be good in an oil advertisement after years of effort to connect the girl and the oil in the minds of the motorists, but ordinarily, it would be hardly worth the effort. At first such a picture would distract from the copy and be worse than no illustration at all, even if it were a good attention getter. A picture may be simple or elaborate, depending on the size of the space to be used, but it must balance the copy and tell a story in itself that is favorable to the product.

Original ideas in copy and art layout are usually good. The Pennsylvania Oil Co. of Madison Wis., recently evolved the comic strip idea. People have a habit of reading comic strips. It was obviously an advertisement as the "ad" reproduced herewith will show, but it proved a good piece of copy. People remarked about it, proving that it was read. The pictures caught their eye; although cartoons, they were on the subject in point, and the copy put over the message of "Pennco."

An Agency is Helpful

If an oil man's advertising appropriation is big enough to justify his employing an agency, he should not neglect to profit by agency service. The production side of advertising is just as technical as grease making. Not only is it a science requiring study, but there is a "trick to it." Some people have a "knack" for it and some have not. Primarily the oil man wants results, and secondarily he wants to try out some of his own ideas about getting results, and that can be done more effectively through an agency than without one.

It is possible to find agents who know something about the oil marketing business, but any agency will take the trouble to learn something about it if it accepts an oil contract. If there is no advertising agency in the oil man's own town, an agent in a nearby city can do the work just as well. Here are some of the things that an agency can do for an advertiser:

The ideas of the oil man himself about how he wants to appeal to the trade in the towns where he has stations, are better than the ideas of any stranger who does not know the business nor the local conditions. The agency men admit that. They do not try to thrust their ideas down the throats of their

clients. They use the client's ideas and develop them better than he can himself for the newspaper's use.

Advertisers of limited appropriation are up against hard competition in small-town papers. Their advertisements appear in the same paper with their neighbors' advertisements. The clothier, the undertaker and the automobile agency, all advertise in the paper. Their manufacturers prepare their copy for them and supply them with mats or electrotypes that look good in print. Copy is written by experts, layout is prepared by artists, material is assembled by persons who understand printing requirements in all sorts of newspaper plants. The oil man has no such advantage and his best way to defend himself is with an agency.

Little Additional Cost

The services of an agency are not supposed to cost the advertiser anything. The rule is that 15 per cent of the advertising cost is paid to the agency by the publication that carries it. But in this case it does cost the oil man more to get an agency's services. Small town papers have two rates, a local rate and a rate for foreign advertisers, which is higher. The foreign rate is usually 15 per cent higher. Although not usually considered in that light, the local rate is a matter of a small paper giving its local advertisers the benefit of an agency commission. So for small-town paper duty, an agency costs the advertiser a fee.

The extra cost usually is worth the money. The expert's skill and available help makes the oil man's advertisements stand out and have superior class, compared with the other "ads" in the same paper. Furthermore, the agency's advice is good on many subjects such as trade marks and distinctive features.

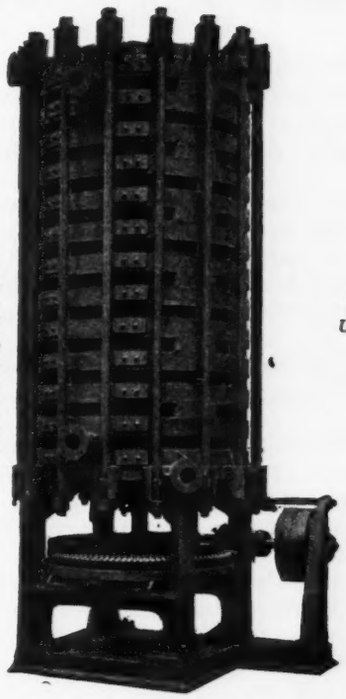
An advertising agency is built to have a burden of detail flow through it conveniently, and its biggest work is to take the burden of detail off the mind of the advertiser. That can be done without the advertiser's losing a particle of his originality. The agency takes the advertiser's ideas, finds the artist and gets the pictures, writes the copy and sets the type, makes a proof and submits it to the oil man for his OK. Furthermore the agency takes care of the tedious schedules and rates.

In selecting a location for advertising to appear, the advertiser always has something to say. The more advertising he runs the more his wishes are consulted in the matter of position. Incidentally, if he wishes to sign an annual contract with his rural newspapers his space rates are lower and, besides, he has more influence with the paper's management in regard to getting a preferred position on the page, or he even may get the same position for his "ad" in every issue. Preferred position is next to reading matter or next to a picture section, or on a page opposite a large advertisement.

A few small town papers still have job print-shops in connection and they like

CONTINUOUSLY OPERATING

MOORE-BURMAH OIL COOLER



This new oil cooler was invented by James Moore, Superintending Engineer of Refineries for the Burmah Oil Co., Ltd. After more than 40 years' experience in designing and manufacturing all kinds of oil refinery equipment, we feel justified in commending the Moore-Burmah as a marked advancement in oil coolers.

Patented in the United Kingdom U. S. A., et cetera.

COOLED 1500 GALLONS HEAVY OIL *AND* PARAFFIN *PER* HOUR

While the cooling of 1500 gallons per hour of heavy oil and paraffin cannot be accepted as standard, because so much depends upon the quality of the oil and the amount of paraffin or stearine to be extracted, this performance does indicate the high efficiency of the Moore-Burmah Oil Cooler. This cooler gives a much higher transference of heat per square foot of cooling surface than any other cooler on the market. Both the first cost and the operating cost are low. It is simple to erect and easy to operate. The extreme dimensions of a 12-cell Moore-Burmah are: Height, 13 ft. 8 in.; width 7 ft.; depth 6 ft. Approximate capacity, 1500 gallons per hour. Approximate driving power 5 h. p.

Write for illustrated literature and complete information.

A. F. CRAIG & CO. LTD., PAISLEY, SCOTLAND

Sole Makers

London Office: Suite 534, Abbey House, 2-8 Victoria Street, Westminster, S. W. I.

Field Methods

are described in detail by Messrs. Cox, Dake and Muilenburg in their book entitled FIELD METHODS IN PETROLEUM GEOLOGY.

It tells about the instruments commonly used in field work and instrument methods employed; the personnel of the field party; the actual field procedure; the preparation of the map and final report.

This is a pocket edition of 305 pages and costs only $4. Mail your check to—

National Petroleum News

823 Caxton Building **Cleveland, Ohio**

Bargain Sale

Comparatively new Vogt Exhaust Steam Ice Machine, 100 tons refrigerating capacity. If not sold promptly as a complete going unit will sell piece meal later on. A partial list of this equipment follows:

1—78"x18 ft. horizontal return tubular Boiler	
1—72"x18 ft. horizontal return tubular Boiler Complete with all trimmings, steam stop valves, headers, Jones Automatic Stokers, Boiler feed pump, etc.	$3,000.00
1—Gardner 4½x2¾x4 Duplex distilled water pump	25.00
3—A. D. Cook 10x36 pump heads with base, Tee and displacement plunger @ $100.00 each	300.00
1—30 Ton Vogt Ammonia Generator used as distilled water evaporator with feed pump and all trimmings	500.00
1—Troy Vertical 8x10 Steam Engine direct connected to Triumph 17½ KW D. C. Generator 125 Volts	
1—Troy Vertical 7x8 Steam Engine direct connected to 79 Amp. 120 Volt Bullock Generator with switch board, etc.	400.00
1—Vogt 50 ton capacity low pressure exhaust steam generator	1,200.00
1—50 ton capacity shell and tube absorber	1,000.00
1—Vogt Fly Wheel Aqua Ammonia Pump 10x4½ x12	200.00
2—10x8x12 Marsh Air Compressors and Air Receiver @ $75.00 ea.	150.00
2—28"x5ft. Charcoal filters @ $15.00 each	30.00
996—11½x22½x47 outside-Ice Cans @ $1.50 each	1,494.00
2—36"x12 ft. Brine Coolers complete @ $250.00 ea.	500.00
2—Horizontal Agitators @ $25.00 each	50.00
1—10 H. P. D. C. Motor 1100 R. P. M.	75.00
1—Curtiss Air Crane 1600 lb Capacity complete	200.00
2—Can Fillers 120 ft. 1¼ Hose @ $25.00 each	50.00
1—4 Can Steel Dumper	75.00
1—Wood Thawing Tank	50.00

Plant will continue in operation until about November 1. A splendid opportunity to purchase high class ice making equipment at a bargain.

Get in touch with us at once

THE CITY ICE & FUEL CO.
3220 Jefferson Ave., Cincinnati, Ohio

The Business of Oil Production

published by Johnson, Huntley and Somers, makes it possible for the beginner in the oil-producing business to obtain a working knowledge of the best methods and of their application.

The man who is experienced will find that it will answer practically any question that may arise on the business side of his enterprise.

The cost of this book is $3.50 and may be obtained by sending your check to—

National Petroleum News, 832 Caxton Bldg., Cleveland, O.

to set up their local advertisements in their own shops and print them right off the type in the good old-fashioned way. A few compositors in such shops are artists in their line. Such men stay in country towns because they own property or have other interests there, but for the most part high wages in city shops take the better printers away from the country newspapers. The average hand-set "ad" in a country newspaper is a sad looking affair alongside of the electrotypes in the next column.

If an oil jobber has business only in one small town and if that town and surrounding community is covered best by a weekly paper that "prints off the block," then the oil man will have to be content with a hand set advertisement. He could have the art work done, but the additional cost would not be justified. Oil men with business confined to small towns like that are scarce. Usually they do business in several such towns and that enables them to run the same "ad" in several weekly papers at different times. In this way the electrotype plate can be prepared by the agency or, indeed, by one of the newspapers if necessary, and forwarded from one paper to another until it has appeared in all of the several localities.

Paper Will Cooperate

In case a company does not prefer to use an agency, having an advertising manager of its own or some department head who serves part time in that capacity, the advertising manager can get cooperation from the biggest paper in his territory. The production manager of this paper can tell him almost anything he needs to know about nearby newspapers and their equipment. The manager of a well handled printing establishment can do that in many cases, quoting prices on various materials.

Most small town papers set ads. It is almost safe to say that all of them do. Most newspapers issued daily, or six times a week, are in a position to reproduce from mats, but if the paper can not use mats it is always well to demand proofs before the advertising is run, no matter how clear was the copy submitted. This is important because all small-town shops do not have the same kind of type and that is a point upon which most advertisers are especially exacting.

For illustrations, halftones are used for reproducing photographs. The smallest halftone is 2 x 2 inches and costs $3.75, and 18 cents per additional square inch. Zinc cuts are used for drawings and line illustrations. The minimum size is 2 x 2 inches and such a cut costs $2.50 but zincs may be obtained at 12 cents per square inch in larger dimensions. Mats are good for simple illustrations not requiring extreme quality reproduction, and they cost 15 cents to $1.25 each, depending on the size.

Electrotypes are cheapest to buy in large numbers and are best for reproducing the same advertisement in several papers at once, where the papers can not use mats. One square inch is

THE value of your fire insurance policy is measured not by its face value but by the skill with which it is drawn to fit your individual case. If it fails to cover accurately and exactly your property and merchandise, all the good intentions in the world won't correct the error *after* the fire. The time to *make sure* is *before* a fire occurs.

To get specialized protection you must deal with specialists.

In oil industry fire insurance, that means N. P. M. F. I. C.

NATIONAL PETROLEUM MUTUAL FIRE INSURANCE COMPANY
WASHINGTON SQUARE
PHILADELPHIA

N P M F I C

Explain to us the difference between a fire insurance policy drawn up by an oil-insurance specialist and the ordinary variety of policy.

Name of Company _____

Name of Writer _____

Address _____

City _____ State _____

N 93025

SIGNAL SERVICE

Who patronizes your filling station and why? Your cash book can answer the first part of the question. Globe Products will account for the latter part.

However:

Without prompt shipments, exact specifications as ordered, or prices that meet fair competition fairly, Globe Service would not be the business builder it is. But, combining all three, as it does, Globe renders a signal service to discriminating jobbers where ever the best is sold.

THE GLOBE OIL & REFINING CO.

Refinery: **Blackwell, Oklahoma**
Sales Office: **708 Atlas Bldg., Tulsa**

GLOBE

PETROLEUM PRODUCTS

Gasoline And Other Motor Fuels

by Ellis and Meigs, is a book which gives a complete survey of the field and a description of practically every process of making gasoline and most other motor fuels of promise or prominence.

The price of the book is $10. Just send us your check and we will mail a copy of it to you.

National Petroleum News, 807 Caxton Bldg., Cleveland, Ohio

the minimum size for electrotypes and a cut of that size costs 80 cents, but only about 8 cents for each additional square inch.

Concerning Newspapers

Most newspapers run 14 lines to the inch and so figure their rates when selling advertising by the line. The average column is 12 picas or two inches.

If an oil man has considerable business in a town he usually has an idea about whether a certain newspaper will serve him well in that locality. That idea may be only a guess however, it being possible that he has overlooked certain important facts to be considered in selecting a medium. The accurate truth about a newspaper, however, can be learned. Most newspaper offices and all advertising agencies have volumes, frequently revised, telling all there is to be known about newspapers and what they have to offer their advertisers.

Suppose an oil man wishes to advertise in a town where he has just established a branch. Say for example that town is Joliet, Ill. The book will tell him a great deal.

"The population of Joliet is 38,000. It is a manufacturing town of large foreign population. The Herald is considered by many the leading paper. Total circulation is 18,600 daily and Sunday. Circulation is divided, city 12,900; suburban 5,200; country 500. Rates are 6 cents per line."

This information is available also with regard to papers in towns much smaller. Papers with a circulation of 1000 are listed in these services, and large newspapers and advertising agencies have access to them.

A great deal of the burden of such problems as those mentioned in this article may be lifted from the shoulders of the rural oil jobber when the National Petroleum Marketers' Association is functioning as it ultimately plans. Advertising copy for small town papers, skillfully prepared in every way and shipped in accident-proof packages will be available to oil men where facilities for producing it are not available.

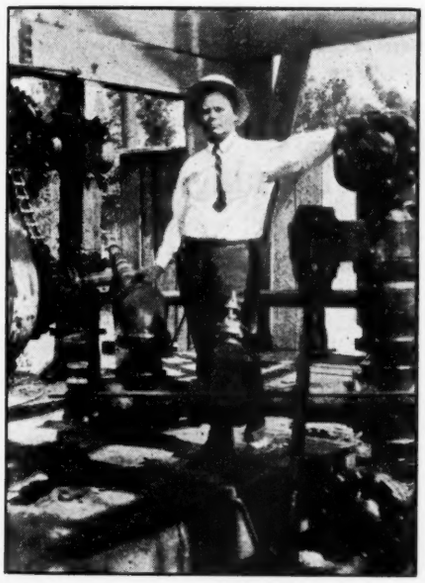
IOCO, B. C., CANADA.—J. E. Sirdevan, superintendent of the Ioco refinery of Imperial Oil Refineries, Ltd., died after a short illness at St. Paul's Hospital at Vancouver, B. C., on July 20. Mr. Sirdevan leaves a widow and three children, according to E. M. Salter of the Imperial.

WICHITA FALLS, TEX.—Texhoma Oil & Refining Co. is preparing its booth for the International Petroleum Exposition and Congress to be held from Oct. 1 to 10 at Tulsa. The company extends an invitation to all its friends to call at the booth, according to C. C. Jones, Jr., advertising manager.

Scouting the Lobbies

JEFF E. HOOPER, general superintendent in the south Texas territory for the Sinclair Oil & Gas Co., bears a distinction enjoyed by few divisions executives in the producing branch of the industry. He is president of the First National Bank of Damon, in Fort Bend county, Texas, near which town he also owns a cotton plantation.

Mr. Hooper became connected with the Sinclair organization, with headquarters at Houston, several years ago. Immediately prior to that time he had been a contractor drilling Sinclair wells on the Damon Mound salt dome. Most of the Damon Mound production is on Sinclair properties controlled since 1917, when the field was originally developed.



J. E. Hooper, General Superintendent, Sinclair Oil & Gas Co. in south Texas territory

Before settling more or less permanently in the Gulf Coastal region, Mr. Hooper was a field executive in the Wichita Falls district for one of the smaller Independent producing companies. Prior to that had been a driller in the Shreveport, La., district. In those days, Mr. Hooper was at one time or another identified with both the Texas and the Gulf companies.

"Jeff", as his friends know him, is never quite as much at home anywhere else as he is on the derrick floor. In the accompanying picture he is shown after an inspection of the equipment on the No. 1 Condit well of the Sinclair Oil & Gas Co., in the South Liberty field. The well is equipped with Jarecki high test steel gates and two 4-inch flow lines with chokers at the "L's" in the flow connections.

IT IS reported that Ross Stuntz, formerly in charge of field operations for the Empire Gas & Fuel Co., and recently in charge of construction for the same company, with Bartlesville headquarters, has been given what most of us would consider a fine assignment. The Doherty interests, following a season of geological work, are getting ready to drill a test on Prince Edward Island. Company tools will be used, manned by expert drillers from the Mid-Continent.

Mr. Stuntz will be on the ground in charge of the work.

There is quite a little vacation season left in this year, so the Doherty men who are lucky enough to participate in this work will start off in pleasant weather in a land that is a great gathering point for tourists.

The land on which the test is to be drilled is part of a blanket oil and gas lease on Prince Edward Island. Hugh McKay of Sapulpa, obtained it from the provincial government and turned it to the Doherty interests. V. R. Garfias, head of the Doherty foreign department, took charge of the geological expedition to the island, which included Harold E. Boyd, of the Doherty New York office and several other geologists. Not much exploratory work had been done in the island, except for some five tests the government had put down in search of coal.

There has been quite a revision of geological opinion as to the possibilities of the eastern seaboard area of Canada, and other companies besides the Doherty organization have within recent months been looking into the question. Gulf Oil Corp. geologists have been sighted by New Brunswick fishermen and altogether enough attention has been given to the eastern provinces to stir up what in some regions would amount to excitement. A little oil and gas has been found in New Brunswick and on the Gaspe peninsula of Quebec there is a very small field that still yields a negligible quantity of oil.

THE Durham interests, which is a rather general way of referring to the group of companies under one roof in Sistersville, W. Va., and consisting of the Wiser Oil Co., Petroleum Exploration, Amity Gasoline Co. and others, are getting ready for extensive work in the region of Cisco, Texas. To that end the district land and geological departments of the Petroleum Exploration which were set up in Tulsa in 1924 have been moved to Cisco. Southern Petroleum Exploration, a subsidiary of Petroleum Exploration—the word "com-

(Continued on page 128)

"Don't forget the temperature, my boy!"

He *won't* forget it—not for a single minute—when the Columbia Recording Thermometer, with the TIME PUNCH, is back of him. The TIME PUNCH is the boss tapping him on the shoulder. It is a constant reminder to him to keep a watchful eye on the temperature in any heat-treat process.

The red line on the recording chart shows the temperature fluctuations over a twenty-four hour period, written indelibly in ink. The *TIME PUNCH* shows whether the man in charge of temperature control has *watched* these fluctuations.

If the little punch holes don't appear on the edge of the disc, it means that he has neglected to "ring up."

If they are there—and at the same time the temperature line runs "wild,"—he has fallen down on the job.

But that's the very thing you won't have to worry about any more, for with this double check-up against him, there is small chance that the man in charge of heat-control will forget or neglect his duties.

By fixing the responsibility definitely in event of negligence, the *Time Punch prevents* negligence, and in so doing guards against heavy losses.

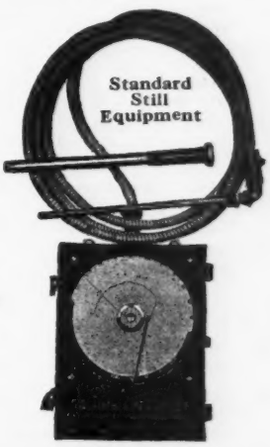
A postcard brings our Catalog H-27.

AMERICAN SCHAEFFER & BUDENBERG CORP.

BROOKLYN, N. Y.

*Boston
Buffalo
*Chicago
Detroit
Cleveland
*Los Angeles
Salt Lake City
Tulsa
Philadelphia
*Pittsburgh
*Seattle

*Stocks carried at these branches.



1850 1925 75th Anniversary

Columbia Recording Thermometers

Refinery Products Directory

Gasoline and Naphtha

ARKANSAS

58-60 U. S. Motor Gasoline
★Imperial Oil Mktg. Co., Tulsa, Okla.

ILLINOIS

58-60 U. S. Motor Gasoline
Indian Refining Company. Lawrenceville, Ill.

KANSAS

60-62 420-430 E. P. Gasoline
★Skelly Oil Co., El Dorado, Kansas

64-66 375 E. P. Gasoline
★Skelly Oil Co., El Dorado, Kansas

KENTUCKY

46-48 500 E. P. Naphtha
Great Southern Refining Co., Lexington, Ky.

50-52 450 E. P. Naphtha
Great Southern Refining Co., Lexington, Ky.

56-58 437 E. P. Gasoline
Great Southern Refining Co., Lexington, Ky.

58-60 Navy Gasoline
Great Southern Refining Co., Lexington, Ky.

58-60 Motor Gasoline
Great Southern Refining Co., Lexington, Ky.

64-66 400 E. P. Straight-run Gasoline
Ashland Refining Co., Ashland, Ky.
Great Southern Refining Co., Lexington, Ky.

68-70 Straight-run Gasoline
Ashland Refining Co., Ashland, Ky.

NORTH LOUISIANA

58-60 U. S. Motor Gasoline
Caddo Central Oil & Refining Co., Shreveport, La.
Louisiana Oil Refg. Corp., Shreveport, La.
Shreveport Prod. & Refg. Co., Shreveport, La.

NORTH TEXAS

56-58 450 E. P. Gasoline
Sunshine Consolidated Oil Co., Wichita Falls, Tex.

58-60 U. S. Motor Gasoline
Panhandle Refining Co., Wichita Falls, Tex.
Sunshine Consolidated Oil Co., Wichita Falls, Tex.

58-60 450 E. P. Naphtha
Noble Oil & Gas Co., Tulsa, Okla.
Panhandle Refg. Co., Wichita Falls, Texas
Texhoma Oil & Refg. Co., Wichita Falls, Texas

60-62 400 E. P. Gasoline
Sunshine Consolidated Oil Co., Wichita Falls, Tex.

64-66 390 E. P. Gasoline
Sunshine Consolidated Oil Co., Wichita Falls, Tex.

64-66 375 E. P. Gasoline
Sunshine Consolidated Oil Co., Wichita Falls, Tex.

68-70 350-360 E. P. Gasoline
Noble Oil & Gas Co., Tulsa, Okla.

OKLAHOMA

50-52 450 E. P. Naphtha
Cameron Refg. Co., Ardmore, Okla.

56-58 450 E. P. Gasoline
★Bolene Refg. Co., Enid, Okla.
Cameron Refg. Co., Ardmore, Okla.

58-60 450 E. P. Gasoline
★Bolene Refg. Co., Enid, Okla.

58-60 U. S. Motor Gasoline
★Bolene Refining Co., Enid, Okla.
Cameron Refg. Co., Ardmore, Okla.
★Imperial Oil Mktg. Co., Tulsa, Okla.
L. O. Carter Co., Tulsa, Okla.

60-62 400 E. P. Gasoline
L. O. Carter Co., Tulsa, Okla.

68-70 350 E. P. Gasoline
Altitude Petroleum Co., Tulsa, Okla.

64-66 390 E. P. Gasoline
★Bolene Refg. Co., Enid, Okla.

64-66 375 E. P. Gasoline
★Imperial Oil Mktg. Co., Tulsa, Okla.

PENNSYLVANIA

50-52 Naphtha
Emery Mfg. Co., Bradford, Pa.

52-54 Naphtha
Lucinda Refining Co., Lucinda, Pa.

54-56 Naphtha
Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.

58-60 Gasoline
Carnegie Refg. Co., Carnegie, Pa.
★Continental Refining Co., Oil City, Pa.
Independent Refining Co., Oil City, Pa.

58-60 Straight-run Gasoline
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.

60-62 Straight-run Gasoline
Bradford Oil Refg. Co., Bradford, Pa.
Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.

62-64 Straight-run Gasoline
Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.

64-66 Straight-run Gasoline
Bradford Oil Refg. Co., Bradford, Pa.
Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.

68-70 Straight-run Gasoline 350 E. P.
McKean County Refining Co., Bradford, Pa.

68-70 Straight-run Gasoline 305-320 E. P.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.

70-72 Straight-run Gasoline 300-305 E. P.
Emery Mfg. Co., Bradford, Pa.
Lucinda Refining Co., Lucinda, Pa.
★Waverly Oil Works Co., Pittsburgh, Pa.

68-70 Blend, 425-430 E. P.
★Continental Refining Co., Oil City, Pa.

Special Naphtha

NORTH TEXAS

V. M. & P. Naphtha
Orient Petroleum Co., Wichita Falls, Texas

Turpentine Substitute
Orient Petroleum Co., Wichita Falls, Texas

44-47 475 E. P. Naphtha
Orient Petroleum Co., Wichita Falls, Texas

47-49 445 E. P. Naphtha
Orient Petroleum Co., Wichita Falls, Texas

OKLAHOMA

V. M. & P. Naphtha
Anderson Prichard Oil Corp., Oklahoma City, Okla.

Cleaners Naphtha
Anderson Prichard Oil Corp., Oklahoma City, Okla.

Rubber Solvent
Anderson Prichard Oil Corp., Oklahoma City, Okla.

PENNSYLVANIA

Turpentine Substitute
Anderson Prichard Oil Corp., Oklahoma City, Okla.

Turpentine Substitute
★Waverly Oil Works Co., Pittsburgh, Pa.

Refineries all over the country are listed according to the products they are making today, or that they have in stock, or will make on reasonable demand.

Refineries shut down for any length of time and whose stocks of products are exhausted, are eliminated so far as possible.

It is requested, in justice to all, that all inquiries by telephone and telegraph be prepaid and this is recommended by the oil associations.

Methods of testing, approved by oil and scientific associations and the U. S. Bureau of Standards, are used. Grades of products listed, as well as names of refineries are revised each week.

Any marketers appearing in these columns are exclusive sales agents by contract with or ownership of refineries and the products listed after them are those made by those refineries.

Natural Gasoline

NORTH TEXAS

Natural Gasoline—Blends

60-62 450 E. P.
Noble Oil & Gas Co., Tulsa, Okla.

OKLAHOMA

Grade A
Altitude Petroleum Co., Tulsa, Okla.

Grade B
L. O. Carter Co., Tulsa, Okla.

Natural Gasoline—Blends

64-66 450 E. P.
L. O. Carter Co., Tulsa, Okla.

Burning Oils

ARKANSAS

41-43 Prime White Kerosene
★Imperial Oil Mktg. Co., Tulsa, Okla.

KENTUCKY

43-44 Water White Kerosene
Great Southern Refining Co., Lexington, Ky.

43-45 Water White Kerosene
Ashland Refining Co., Ashland, Ky.

NORTH LOUISIANA

41-43 Water White Kerosene
Caddo Central Oil & Refining Co., Shreveport, La.
Louisiana Oil Refg. Corp., Shreveport, La.

NORTH TEXAS

41-43 Water White Kerosene
Sunshine Consolidated Oil Co., Wichita Falls, Tex.

OKLAHOMA

41-43 Water White Kerosene
Cameron Refg. Co., Ardmore, Okla.

41-43 Prime White Kerosene
★Imperial Oil Mktg. Co., Tulsa, Okla.

44-46 Water White Kerosene
Altitude Petroleum Co., Tulsa, Okla.
Anderson-Prichard Oil Corp., Oklahoma City, Okla.

PENNSYLVANIA

45 Water White Kerosene
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Carnegie Refg. Co., Carnegie, Pa.
★Continental Refining Co., Oil City, Pa.
Emery Mfg. Co., Bradford, Pa.
★Empire Oil & Grease Co., Inc., Oil City, Pa.
Independent Refining Co., Oil City, Pa.
Lucinda Refining Co., Lucinda, Pa.
McKean County Refining Co., Bradford, Pa.
Mutual Refg. Co., Warren, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.

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Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.
Mutual Refg. Co., Warren, Pa.

47 Water White Kerosene
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Craig Oil Co., Toledo, O.

200 Vis. at 100° F. No. 3 Color (Pale)
Craig Oil Co., Toledo, O.

PENNSYLVANIA

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Emery Mfg. Co., Bradford, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa
Seneca Oil Works, Warren, Pa.

150 Vis. No. 4½ Filt. (Red)
Crystal Oil Works, Oil City, Pa.

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Carnegie Refining Co., Carnegie, Pa.
Emery Mfg. Co., Bradford, Pa.
Pennsylvania Oil Products Refg. Co., Warren Pa.
Seneca Oil Works, Warren, Pa.

200 Vis. No. 3 Asso. Filt.
Butler County Oil Refg. Co., Bruin, Pa.
Carnegie Refining Co., Carnegie, Pa.
Emery Mfg. Co., Bradford, Pa.
★Empire Oil & Grease Co., Inc., Oil City, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.
Seneca Oil Works, Warren, Pa.

14 Gravity 350-360 Flash
Pennsylvania Oil Products Refg. Co., Warren, Pa.

Cylinder Oils

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600 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Crystal Oil Works, Oil City, Pa.
Emery Mfg. Co., Bradford, Pa.
Lucinda Refining Co., Lucinda, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.

635 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Emery Mfg. Co., Bradford, Pa.

650 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
McKean County Refining Co., Bradford, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.
Seneca Oil Works, Warren, Pa.

600 Flash Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
Kendall Refining Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.
★Waverly Oil Works, Pittsburgh, Pa.

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★Waverly Oil Works, Pittsburgh, Pa.

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Butler County Oil Refg. Co., Bruin, Pa.
Carnegie Refining Co., Carnegie, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa

600 Oil City E
Butler County Oil Refg. Co., Bruin, Pa.
Carnegie Refg. Co., Carnegie, Pa.
Independent Refining Co., Oil City, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.

600 Filtered D
Butler County Oil Refg. Co., Bruin, Pa.

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Mutual Refg. Co., Warren, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.
Warr-Penn Refining Co., Warren, Pa.

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Pennsylvania Oil Products Refg. Co., Warren, Pa.
Warr-Penn Refining Co., Warren, Pa.

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Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.

Chatterless Oil Base
Damascus Mfg. Corp., Cleveland, O.
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
★Waverly Oil Works Co., Pittsburgh, Pa.

Cup Grease
★Columbia Oil Co., 3419 Papin St., St. Louis, Mo.
Richardson Lubricating Co., Quincy, Ill.
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.

Cutting Compounds
Damascus Mfg. Co., Cleveland, O.
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Gear Grease
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Fiske Bros. Ref. Co., 24 State St., New York, N. Y.
Branch 215 Pontiac St., Toledo, Ohio
Schaeffer Bros. & Powell Mfg. Co., St. Louis, Mo.
Stevens Grease & Oil Co., Cleveland, O.

Soluble Oils & Base
Damascus Mfg. Corp., Cleveland, O.
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PENNSYLVANIA

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Kendall Refining Co., Bradford, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.

124-126 Crude Scale (off white)
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128-130 Refined
★Waverly Oil Works Co., Pittsburgh, Pa.

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★Imperial Oil Mktg. Co., Tulsa, Okla.

32-36 Gas Oil
★Imperial Oil Mktg. Co., Tulsa, Okla.

KENTUCKY

24-26 Fuel Oil
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Nashville Oil Co., Nashville, Tenn.

26-30 Fuel Oil
Nashville Oil Co., Nashville, Tenn.

30-32 Fuel Oil
Ashland Refining Co., Ashland, Ky.

34-38 Gas Oil (light)
Great Southern Refining Co., Lexington, Ky.

34-38 Gas Oil (dark)
Great Southern Refining Co., Lexington, Ky.

38-40 Distillate (light)
Ashland Refining Co., Ashland, Ky.

NORTH LOUISIANA

14-18 Fuel Oil
Caddo Central Oil & Refining Co., Shreveport, La.

18-22 Fuel Oil
Louisiana Oil Refg. Corp., Shreveport, La.

32-36 Gas Oil
Caddo Central Oil & Refining Co., Shreveport, La.
Louisiana Oil Refg. Corp., Shreveport, La.

NORTH TEXAS

24-26 Fuel Oil
Sunshine Consolidated Oil Co., Wichita Falls, Tex.

34-38 Gas Oil (dark)
Texhoma Oil & Refg. Co., Wichita Falls, Tex.

38-40 Distillate—Prime White
Noble Oil & Gas Co., Tulsa, Okla.

OKLAHOMA

22-24 Fuel Oil
L. O. Carter Co., Tulsa, Okla.

26-30 Fuel Oil
★Bolene Refining Co., Enid, Okla.

30-32 Fuel Oil
★Bolene Refining Co., Enid, Okla.

32-36 Gas Oil
★Bolene Refining Co., Enid, Okla.
Cameron Refg. Co., Ardmore, Okla.
L. O. Carter Co., Tulsa, Okla.
★Imperial Oil Mktg. Co., Tulsa, Okla.
★Roxana Petroleum Corp., St. Louis, Mo.

36-38 Straw Distillate
Cameron Refg. Co., Ardmore, Okla.

38-40 Straw Distillate
★Bolene Refining Co., Enid, Okla.

PENNSYLVANIA

30-34 Fuel Oil
Butler County Oil Refg. Co., Bruin, Pa.
Mutual Refg. Co., Warren, Pa.

36-40 Fuel Oil
Bradford Oil Refg. Co., Bradford, Pa.
Carnegie Refg. Co., Carnegie, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
Lucinda Refining Co., Lucinda Pa.
McKean County Refining Co., Bradford, Pa.
Pennsylvania Oil Products Refg. Co., Warren, Pa.

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Altitude Petroleum Co., Tulsa, Okla.

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Scouting the Lobbies

(Continued from page 125)

pany" is not part of the official name of the latter—has been busy for some time taking acreage in the shallow sand fields of this general area.

When the company established offices in the Mid-Continent building at Tulsa, A. R. Marshall steered the craft through the new waters. This office was intended mainly to serve as an operating base for Petroleum Exploration, which had theretofore concentrated on Kentucky. The Wiser Oil Co. has for a long time been entrenched in Oklahoma and Kansas, with Mid-Continent headquarters in Bartlesville and Petroleum Exploration was to be given its chance to plant its feet in the nation's principal oil territory. Now that it has been decided that Texas is to be the stamping ground, all the geologist's alidades and the land department's packages of Form 88 have been packed up and moved.

J. K. Wallingford will have charge of the Cisco offices and Mr. Marshall will continue to divide his time between Kentucky, Sistersville and Texas. H. R. Van Gilder, geologist, has been assigned to duty in Texas, coming back from New Mexico and L. E. Fiske, geologist, will be in the Cisco district.

Western Petroleum Exploration, organized some three years ago to operate in the Rocky Mountain territory, has recently moved its offices from Great Falls to Shelby, Mont., so as to be nearer the Sunburst field where substantial production has been developed. A. J. Findlay, who went west for the company is in charge of Western Petroleum Exploration.

TULSA.—H. B. Gutelius, well-known Independent producer, who has been a resident of Tulsa for the past 16 years, has accepted the position of district manager for the Continental Supply Co., and is now busy getting acquainted with his new job. Mr. Gutelius was with the National Supply Co. for 14 years up to 1916, when he went into business for himself as a producer. He therefore approaches his new position with a background of wide experience from both the producer's and the supply man's angle.

TULSA.—C. C. Herndon, vice-president of Skelly Oil Co., has returned from a seven-weeks' vacation, which he spent with his family in New York state, near Chautauqua. Mr. Herndon unfortunately was ill during nearly half of his vacation, and this prevented a contemplated motor trip through the New England states and into Canada.

TULSA.—John M. Lovejoy, general manager of the Amerada Petroleum Corp., has returned to his desk after an enjoyable vacation, which he spent touring in Quebec and other Canadian points.

Fields in Louisiana-Arkansas Territory All Have Deeper Possibilities

By Paul Wagner
N. P. N. Staff Writer

Article 2 in a Series on Louisiana and Arkansas

NORTH Louisiana and South Arkansas oil fields, with virtually no exception, hold out promise of deep production at drilling levels below the currently exploited horizons.

These possibilities are, of course, more remote in some fields than they are in others; also the same sands may not prove productive in all of them.

The horizons now productive of commercial quantities of petroleum in one or more fields of the general area include the Nacatoch sand, the Annona chalk, the several sands of the Bingen series and, to a limited extent, the Lower Cretaceous beds. These are found in descending order in the more or less related general area under discussion.

On the northern part of the Sabine Uplift, where the Caddo district, the De Soto-Red development and two small fields of Bossier parish, Louisiana, are located, the Bingen series beds are separable into three divisions. These division include the Blossom sand, in the upper part of the stratigraphic section; the Eagle Ford shales, as a middle member; and the Woodbine sand, as the basal member.

The foregoing distinctions are generally taken into account in an accompanying tabulation of actually and potentially productive horizons in the various North Lousiana and South Arkansas fields. A study of producing horizons in the old Caddo district, however, may not always make clear distinctions as between these three divisions of the Bingen series beds, but only at Pine Island has there been the definite establishment of commercial petroleum below the basal Woodbine member.

All the productive beds down to and including the Woodbine are of Upper Cretaceous age in the north Louisiana and south Arkansas territory. Nominal oil production has been found below the Woodbine in the Pine Island field at the 2750-2950 foot level, in the Upper Trinity beds of Lower Cretaceous age.

Deeper in the Lower Cretaceous section, probably near the base ot the Trinity group, two high pressure gas wells have been completed at the 3600-3700 foot level.

The Pine Island deep gas found in wells of the Dixie Oil Co., (Standard of Indiana), and the Ohio Oil Co., encouraged the belief that sands in the Lower Cretaceous geological section may contain important petroleum accumulations at points that are structurally favorable.

A yield of as high as 1500 gallons daily of 68 gravity raw natural gasoline has been recovered at the casinghead of the Dixie's original gas well, which was completed in October, 1924, for 45,800,000 cubic feet daily in 85 feet ot broken, sandy lime at 3623 feet. This well is its No. 43 Dillon (Robertshaw), in 13-21-15. The gasoline recovery has been accomplished by utilizing the expansion of the well's natural pressure through scrubber tanks installed for this purpose. (National Petroleum News, page 29, July 22, 1925, issue.)

The more recent test of the Ohio Oil Co., its No. 17 E. K. Smith, in 12-21-15, showed oil in considerable quantity at 3317 feet, had a gas showing at 3625 feet and was good for 60,000,000 cubic feet daily at total depth of 3696-3697 feet. The below sea-level elevation of the Ohio's test is 3514 feet as compared with 3453 feet, subsea level, of the Dixie well.

Original flush production in the Pine Island division of the Caddo district came from the shallower levels commonly exploited in the rest of the last named territory. The deep production found at 2750 to 2950 feet is accredited to the topmost Trinity beds and the more recent deep gas probably comes from a sand in the Trinity group usually referred to as the Glen Rose.

An unconformity is recognized as separating the Upper Cretaceous beds and Lower Cretaceous beds in the region, at least in the productive area of the Sabine Uplift. East and northeast of the Sabine Uplift the stratigraphic

Horizons Actually Or Potentially Productive

In North Louisiana and South Arkansas Fields

Field	Location	Producing Horizons	Nature of Yield	Approximate Depth, feet	Possible Producing Horizons To Be Tested
		LOUISIANA			
Caddo Dist.	Caddo Parish	Nacatoch sand	Gas	800–	
		Annona chalk	Oil	1500–1700	
		Bingen Series	Oil	2000–2300	
		Trinity Group	Oil-gas	2750–2950	
		Trinity Group	Gas	2600–3700	Lower Cret.
DeSoto-Red River	DeSoto-Red River Parishes	Nacatoch Sand	Gas	800– 975	
		Annona Chalk	Oil	Variable	
		Bingen Series	Oil	2400–2750	Lower Cret.
Elm Grove	Bossier Parish	Nacatoch Sand	Gas	800– 900	
		Brownstown Marl	Oil	1560–	
		Bingen (Woodbine)	Gas	2450–	Lower Cret.
Bellevue	Bossier Parish	Nacatoch Sand	Oil	290– 410	
		Bingen (Blossom)	Gas show	1340–	
		Bingen (Woodbine)	Oil Show	1750–1800	Lower Cret.
Homer	Claiborne Parish	Nacatoch Sand	Oil	1170–1450	
		Blossom Sand	Oil	2100–	Woodbine and Lower Cret.
Haynesville	Claiborne Parish	Nacatoch Sand	Water	.....	
		Blossom Sand	Oil	2700–2800	Woodbine and Lower Cret.
Cotton Valley	Webster Parish	Blossom Sand	Oil-gas	2750–	Same as Haynesville
Shongaloo	Webster Parish	Blossom Sand	Gas	2750	Same as Haynesville
Sarepta	Webster Parish	Blossom Sand	Gas	2700	Same as Haynesville
		SOUTH ARKANSAS			
El Dorado	Union Co.	Nacatoch Sand	Oil-gas	2100	
		Blossom Sand	Oil-gas Showings	2800–2900	Same as Haynesville
Calion	Union Co.	Nacatoch Sand	Oil	2130–2200	
		Blossom Sand	Oil	2866–	Same as ElDorado
Smackover	Union and Ouachita Cos.	Nacatoch Sand	Oil-gas	2100–	
		Graves (Sand in Marlbrook Marl)	Oil-gas	2300–2400	
		Blossom Sand	Oil-gas	2585–2710	Same as ElDorado
Stephens Dist.	Ouachita & Columbia Cos.	Blossom Sand	Oil	2150–	Same as ElDorado
Irma	Nevada Co.	Nacatoch Sand	Oil	1100–	Bingen Series and Lower Cretaceous

(Note—Bingen Series herein made to include Blossom Sand as top member; Eagle Ford Shales as middle member; and Woodbine sand as basal member.)

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divisions given for the Caddo and De Soto-Red River areas are not so clearly established as a whole, although both the Nacatoch and Blossom sands are identified as indicated in the present discussion.

Conditions of Exploitation

The Nacatoch sand is an oil bearing horizon of importance at Homer, La., and in all of the larger fields of south Arkansas, notwithstanding it yields only gas in the Caddo and De Soto-Red River development areas. No important production has come from the Annona chalk in the De Soto-Red River area, although it has yielded a considerable quantity of commercial oil in the Caddo district. Elsewhere in north Louisiana and south Arkansas the chalk has not been exploited.

A field located at the culminating point of the Sabine Uplift in north Louisiana has the distinction of being the one productive pool adjacent to the Caddo district which yields oil instead of gas at the Nacatoch level.

Fields northeast of Bellevue, in Webster and Claiborne parishes are generally considered to bear no relation to the Sabine Uplift, but instead to be influenced by another such regional structure bearing southeasterly out of Arkansas in the general direction of the Monroe gas field of Ouachita parish.

No important production has been found below the Nacatoch sand in the Bellevue area, although its structural position on the Sabine Uplift is such as to hold out high hopes of Lower Cretaceous yields in the future. Drilling to the Blossom and Woodbine sand levels in the Bingen series beds has resulted in the finding of oil and gas shows, but as yet no commercial production. Enough testing has not been done, however, to disprove the surrounding territory for oil at any level below the Nacatoch sand.

Beyond Bellevue to the northeast, the Homer field, in Claiborne parish, La., produces both from the Nacatoch and the Blossom sands; the Haynesville and Cotton Valley pools, in Claiborne and Webster parishes, respectively, produce from the Blossom sand but not from the Nacatoch.

The Nacatoch is productive in the El Dorado, Calion and Smackover, Ark., fields; also it yields up relatively small quantities of commercial petroleum in the Irma field of Nevada county. Stephens district production, in Columbia and Ouachita counties, seven miles southeast of Irma development, comes from the Blossom sand.

New Deep Pay at Calion

Deep production indicated in a 60-barrel well of Jim Stock, et al, in 18-17-14, East El Dorado (Calion) field, is provisionally identified with the Blossom sand at 2866 feet. This well and one earlier test that showed for oil at a similar level, about two years ago, are

(Continued on page 128-F)

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Service Stations in Residential District No Nuisance

COLUMBUS, O., Sept. 18.—Oil and gasoline service stations when erected in residential districts of towns and cities are legitimate enterprises and not nuisances and their erection along modern scientific lines cannot be prevented.

This is the opinion of Chief Justice Marshall of the Supreme Court of Ohio in a decision in a suit brought originally by D. S. Craig and several other citizens of Washington C. H., O., against Frank M. and Oscar Earl Powell who sought to build a service station on an advantageous tract they owned in the best residential district of that little Ohio city. Five of the six associate justices of the Ohio Supreme Court concurred in the opinion of Justice Marshall.

The Powells owned a lot of three quarters of an acre at the convergence of Court St. and Washington and Columbus Aves. in Washington C. H. but when they proposed to build a service station on it, nearby residents sought a restraining order. This order was granted by the common pleas court of Fayette county and the Powells appealed. The circuit court of appeals upheld the lower court and the case was appealed to the Supreme court with the recent victory by the oil men.

The district in which the station was to be built was not set aside solely for

Fields Have Possibilities

(Continued from page 128-D)

the first indications found of deep production in the Calion area.

In the Smackover district, which includes parts of both Union and Ouachita counties, the prolific second pay zone is known as the Graves sand. It is an intermediate producing horizon between the original Nacatoch development level, at about 2100 feet, and the deeper Blossom pay below 2585 feet. The Graves sand, for the purposes of this discussion, may be identified as a "stray" horizon embedded in the Marlbrook marl.

As the present article of this series contemplates a discussion of possibilities in known fields rather than territories where "wildcatting" may be pursued a reference to the accompanying table will disclose points sought to be set up by the writer but not amplified in the text.

The broad statement may be made with regard to "wildcatting" operations, however, that prospects in areas adjacent to known fields will not have been thoroughly tested at structurally favorable points until the drill has penetrated to the deeper horizons mentioned in this discussion. A test at one, or more, of the upper horizons may have possibilities at deeper levels.

residential purposes by any zoning ordinance. Any business might be set up in the district. But Craig and his associates set forth their complaint in part as follows:

"The locality in which said premises are located is exclusively a residence district, and many of the best and most expensive residences in the city of Washington are located in the immediate vicinity thereof, and the plaintiffs, each of them, own residences in that locality, where they have lived for many years, and have constructed and beautified their grounds at large expense, and have heretofore enjoyed their residences free from annoyance by noise, noxious odors or congested conditions of streets."

Craig and his associates in their petition said the erection of the station and its operation would greatly injure them in the use and enjoyment of their premises in that the risk of explosion would increase and would endanger persons and property; that operation would cause congestion of the streets, and noise and disorder by persons coming in to purchase oil and gasoline, and that their properties would be greatly interfered with.

Supreme Court's Opinion

The opinion of the Supreme Court, officially reported in the 112th Ohio State Reports, follows:

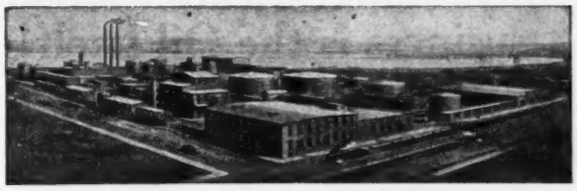
"The court of appeals in this case, while finding that the construction, maintenance and operation of a filling station was not a nuisance per se, found that it was a nuisance in this particular case by reason of its location in this exclusively residential district.

"Since all nuisances, except nuisances per se, are such by reason of their proximity to other property, this court is confronted with the proposition of determining whether the invasion of an exclusively residential district by this class of business, not unlawful, either by statutory law, common law, or ordinance, constitutes a nuisance, for, notwithstanding the apprehensions of the defendants in error (Craig and others) as to the effect the installation and operation of this filling station will have upon the value and their enjoyment of their respective properties, it must be conceded that by reason of the size of the site of plaintiffs in error, and its location with reference to the three streets, and with reference to the properties of the defendants in error, and by reason of the proposed location of the driveways, one substantially parallel to and adjacent to Washington Ave. and the other substantially parallel to and adjacent to Columbus Ave., the damage and inconvenience to defendants in error resulting from the erection of this filling station will in no sense be greater than the damage and inconvenience resulting to the owners and occupiers of residential properties in the vicinity of any filling station in any residential district.

"We are of opinion it must also be conceded that the hazard of ex-

A. D. MILLER SONS CO. *Pittsburgh, Pa.*

Producers and Refiners of High Grade Pennsylvania Oils



PENNSYLVANIA S. R. CYLINDER STOCKS, Fire tests 600°, 635°, 650° High Viscosity

PENNSYLVANIA MOTOR OILS, Blended to suit Jobbers' specifications. In tank cars, steel drums, wooden barrels.

VISCOUS PALE NEUTRAL OILS, KEYSTONE PAINTERS' SPIRITS. All grades WATER WHITE OILS, MINERAL COLZA, GASOLINES, etc.

Cable Codes: Western Union (Universal) ABC (4th and 5th Edition, Private Codes) Established 1862

BIGGS TANKS

Write it just like that when you are making out your next requisition for storage or station tanks—

"BIGGS TANKS"

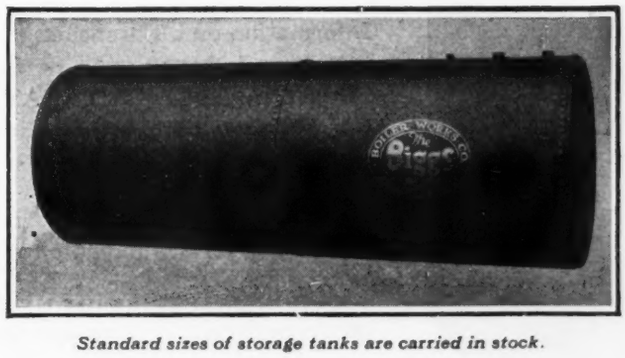
You can't go wrong on a Biggs Tank—there are plenty of users who will tell you that you get the most tank for your money when it comes out of the Biggs Shop.

"Made Right—Always Tight"

THE BIGGS BOILER WORKS COMPANY

Buchtel and Bank Sts. Akron, Ohio

Specialists in Riveted Steel Plate Construction Since 1887



Standard sizes of storage tanks are carried in stock.

The Only Thing "Crude" About Our Business is the Oil Itself!

. . . . and we've refined that crude so that it has every quality necessary to properly lubricate any motor.

BY concentrating upon one grade of crude, drawn from the hills and valleys centered around our refinery—by experimenting for years with this one quality of Pure Pennsylvania Crude, we have been able to develop a grade of oil that cannot be surpassed.

"Pipe Line Oil" coming from every direction, from every kind of well, can not be of a uniform quality. Unless you have a uniform base crude to work with it is not possible to always maintain uniformity in the refined product.

We know our crude. The crude we get is of high enough quality before going to the refinery to compare favorably with many of the treated oils on the market. Before we ship any order we know that it is exactly *uniform* quality, and on your repeat orders you have our assurance and guarantee that every order is of the same uniform quality.

We've also refined our organization! We are organized to handle orders quickly and ship promptly, either from our huge stock of bulk oils or, if necessary, oils compounded according to your specifications.

Wire, write or telephone for a trial order or test samples.

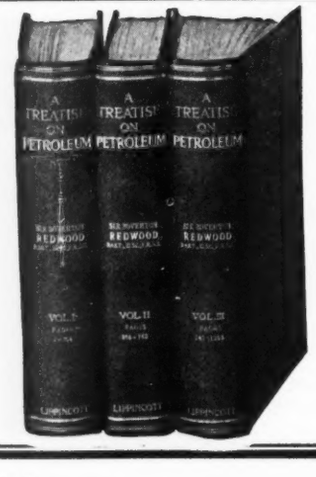
WHEN YOU BUY EMPIRE YOU GET THE BEST

EMPIRE

EMPIRE OIL & GREASE CO.

OIL CITY, PA.

Refinery: Reno, Pa. *Warehouses at strategic shipping points*



Information on all branches of the petroleum industry is to be found in the 4th edition of **A TREATISE ON PETROLEUM** by Sir Boverton Redwood.

To obtain this valuable set make your check for $39 payable to

NATIONAL PETROLEUM NEWS
811 Caxton Bldg. Cleveland, Ohio

plosion and fire from a filling station erected according to modern science and engineering as applied to such structure is not of such magnitude as to make its installation a nuisance for that reason alone.

Not a Great Hazard

"Having reached the conclusion that, properly installed and properly operated, the filling station is not such a fire or explosion hazard as to constitute a nuisance for that reason alone, we are unable to distinguish it from any other class of business not offensive in itself that attracts substantial patronage, since in this day and age so large a per cent of the patrons of every merchant utilize the automobile as a means of conveyance to and from the merchant's place of business.

"The pronouncement of the court of appeals, if affirmed, would have a far-reaching influence, and would affect business institutions of every kind and character sought to be located in the residence portions of municipalities. The decision of this court in this case necessarily becomes a rule of law applicable to any other business enterprise, differing only in degree, and not in kind.

"While courts have never laid down a hard and fast rule whereby a business may be exactly measured for the purpose of determining whether it is a nuisance by reason of its proximity to other property, they will not exercise an arbitrary discretion in that respect, but will apply the same principle to similar situations.

All Business Endangered

"The affirmance of this judgment would necessarily unsettle the rights of many thousands of persons now engaged in business in districts otherwise exclusively residential, for, if it be a nuisance to establish a business in such district, each day's operation therein is a new and distinct act constituting a nuisance, and the maintenance of a nuisance is just as much a subject of judicial inquiry as the inauguration of such nuisance.

"Being of opinion that the inconvenience and damage, if any, that will be suffered by the defendants in error by the erection of a filling station on the property of plaintiff in error (the Powells) are only such as are incident to the proper and lawful use of one's own property, we are of opinion that the court of appeals erred in its application of the law to the facts of this case, and its judgment is therefore reversed."

CHICAGO, — Better Service Co., wholesale and retail oil jobbers, of Chicago and La Grange, Ind., are extending their operations as fast as locations can be secured.

GENEVA, IND.—Cross Service Co. recently completed a service station and accessory store at Geneva, according to W. D. Cross, Jr.

Economic Law in Refining Division

By Joseph E. Pogue

Delivered Sept. 17 Before National Petroleum Association at Atlantic City

FOR the fourth consecutive year, not counting 1921 when the cause was world-wide deflation, the petroleum refining industry finds its price structure in collapse at the peak of the consuming season. If an outside observer seeks the cause of this unfortunate development, and confines his investigations to the statements of the press and to superficial examination of the situation, he will probably arrive at the conclusion that a small number of nortorious and unprincipled men, called gasoline bootleggers, have in some underhand fashion come into possession of large quantities of gasoline which they are using to undersell and undermine the markets of the more high-minded members of the industry.

Just how these low individuals, apparently few in number and unorganized, are able to wage their guerrilla warfare successfully in all parts of the country and in direct opposition to the efforts of an immeasurably more powerful group will probably remain unexplained, although a fundamentalist might suspect that Providence has deserted the powers that be in retaliation for an unknown transgression. It would certainly appear difficult to explain upon wholly natural grounds how it came to pass that a great and puissant industry failed to gain prosperity from a 20 per cent increase in the demand for its leading product, gasoline.

Unconvincing Conclusions

But perhaps our observer is not wholly satisfied with these superficial conclusions. He may begin to doubt the power imputed to the unrighteous bootleggers; upon further reflection, he may commence to wonder if these nefarious individuals are not in the nature of figments of the imagination. If a student of modern psychology, he may even suspect that the gasoline bootlegger is a part of a defense mechanism set up by the legitimate industry to protect itself against the unbearable realization that its troubles are all of its own making. Some confirmation of this ingenious theory might be gained from a study of the industry's late developed sensitiveness in respect to the public's attitude toward its operations, a sensitiveness so acute that it conjures up visions of public ill-will and hostility to the point of neurosis. The "defense mechanism" and the "public relations complex" are mutually supporting in their implications. Perhaps our observer has gone entirely too far in his analysis; but it might be difficult to disprove wholly his contention.

Now, let us take a more realistic view of the conditions that the petroleum refining industry is up against. In the first place, the industry is overequipped with refining facilities. In the second place, the presence of huge stocks of crude oil in storage makes it possible to overproduce refined products at any time the industry so elects, independently of the current production of crude oil. In the third place, the industry has developed an ingenious method of manufacturing gasoline from gas and fuel oil at a cost which permits the synthetic product to undersell straight-run gasoline whenever crude oil prices are even moderately high. This process, still in its early stages as to efficiency and scope, is also enlarging the economic size of the crude oil in storage. Accordingly, the petroleum refining industry is surrounded by an array of physical conditions that make it easy to understand how overproduction as a recurrent annual incident in late years has been possible.

Situation in 1925

Take 1925 as an example. With fresh supplies of refinable crude for the first time in several years not excessive, oil prices have nevertheless suffered one of the sharpest declines in the history of the industry. Why? Merely because the refineries of the country, oblivious to consequences, expanded their operations until they were running to stills upwards of 200,000 barrels of crude oil daily in excess of market requirements. Naturally the surplus output could not be absorbed; stocks accumulated; manufacturers became anxious to move their output, consumers reluctant to buy. Price declines were inevitable.

For what other factor is competent to bring about a curtailment of activities in an industry where price alone is listened to? Maturer industries are often regulated by economic principles; not so oil. An unkind critic might accuse the petroleum industry of deliberately attempting to contravene the laws of economics, with optimistic expectations of success. However else, other than on the score of ignorance of what it was doing, a graver charge, can one explain over-refining to the gross extent of 10 per cent? Think of the steel industry, for example, expanding its output 30 per cent in one year and expecting to get away with it, as the oil industry did with the output of gasoline!

But the more physical ability to oversupply your markets, growing out of excessive equipment, large stocks of raw material, and advancing technology, is not alone sufficient to explain habitual overproduction. The physical ability to overproduce need not necessarily be followed by overproduction. The human factor comes in; there must be human motives present, which misdirected lead to overproduction. If you will permit a personal opinion, these motives center about a more or less ill-defined idea that a crude oil shortage is always just ahead—an elusive idea that is very difficult either to substantiate or to refute, and yet an idea that fires the industry with optimism when prices rise and merely lies dormant when prices fall.

Whatever the ultimate merits of this idea may be, it has thus far proved a poor operating guide, for it has made refiners reckless in expansion and conservation in curtailment, whereas the reverse is collectively much the more profitable. Of course, overspreading this primary idea and in many cases hiding it, are the more practicable considerations that induce the individual refiner to seek to maintain capacity operations and to attempt to liquidate on good markets the stocks left over from the previous cycle of over-optimism.

Basing on Hopes

Thus, as a result of its physical ability and in response to an idea, which, however probably as an eventuality, has certainly thus far proved inexpedient to maintain, the petroleum refining industry (or, indeed, the entire petroleum industry, for that matter) has come to base its collective operations more upon hope and optimism, than upon cold, hard analysis of facts. In consequence, the industry has not once or twice, but time and time again, transgressed the cardinal economic laws that almost without exception in the history of industrialism have refused to be broken without exacting inexorable penalties for their violation.

Now, what is to be done about it all? Unfortunately, there is no panacea to offer. The prime objective of an industry is to balance demand with supply. Equilibrium of supply and demand is tantamount to stability. How can this equilibrium be attained and maintained? There are but two forces competent to create balance and stability. These are price and production control. Price will operate without individual effort, according to the well known law of supply and demand, whereby:

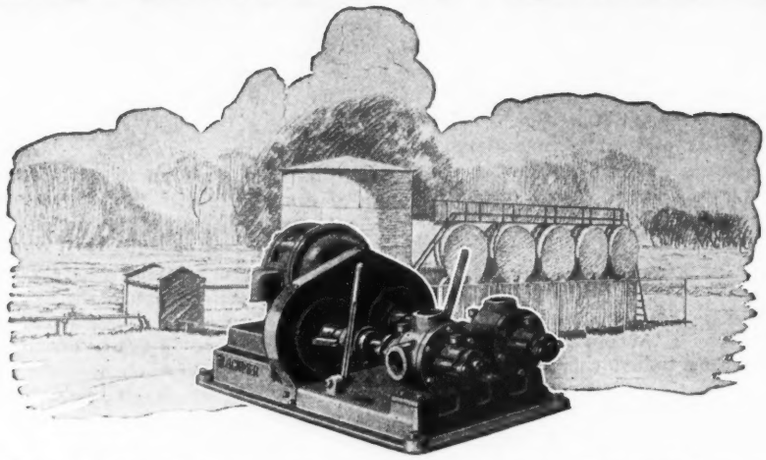
1. "When, at the price ruling, demand exceeds supply, the price tends to rise. Conversely when supply exceeds demand the price tends to fall.

2. "A rise in price tends, sooner or later to decrease demand and to increase supply. Conversely a fall in price tends, sooner or later, to increase demand and to decrease supply.

3. "Price tends to the level at which demand is equal to supply."

Thus, price is a mechanism that creates an average condition of equilibrium over

BLACKMER ROTARY PUMPS



Built for the Bulk Station

In designing the Blackmer Standard Double Unit the Blackmer engineers were guided by the pumping requirements of the bulk distributing station. Now Blackmer offers the bulk station owner a unit especially suited to his needs and at a lower price, made possible by standardization.

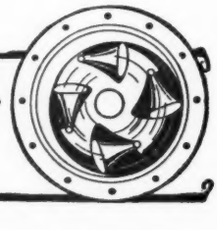
The Standard Double Unit, pictured above, consists of two 100 G. P. M. Blackmer Pumps, one right hand and one left. It is mounted with clutches and power plant on an extra-heavy cast iron base with or without space for a fire wall. Power may be either of three types, to meet the customers needs: electric motor, Novo Engine or New-Way air-cooled engine.

In this unit is incorporated the Blackmer Principle of automatic-take-up-for-wear which makes possible the long and uninterrupted pumping service for which Blackmers are noted.

Units powered as desired.

Write our nearest branch office for catalog and prices

BLACKMER ROTARY PUMP Co.
Petoskey, Mich.
Offices in nineteen principal cities



THE GEOLOGY OF PETROLEUM

is the name of the book written by William H. Emmons, which goes into detail describing the more important fields such as the Appalachian, Lima-Indiana, Illinois, Mid-Continent, Gulf Coast of Texas and Louisiana, Rocky Mountain, Canadian, Mexican and foreign fields.

It contains 610 pages, with 254 maps and illustratrations, and may be purchased for $6 from—

National Petroleum News

824 Caxton Building **Cleveland, Ohio**

a long time, but price achieves this result by bringing about alternate periods of overproduction and curtailment, the familiar cycle of prosperity and depression. The objection to price as a governor is that price follows a condition rather than precedes it, is a curative, not a preventive. The problem before the petroleum industry is to prevent, or rather to minimize, the violent price fluctuations that have proved so disastrous in late years.

The solution of this problem requires that the industry shall not wait to get its cue from the action of price, for then it is too late, but that the industry shall recognize from adequate statistics competently interpreted the symptoms of overproduction, and then be ready to prevent the development of the disease by the only treatment that can be effective, controlled production. This is no easy result to achieve. No royal road leads to this destination. But, at least, the direction of progress is plain.

And, yet, one might hesitate to see the prime characteristics of the petroleum industry, its flair for the spectacular, supplanted by the even tenor of stability. Something, after all, may be said in favor of wild market fluctuations, care-free optimism, and unbridled operations. These elements add an interest and zest to an industrialism which ordinarily tends to the drab and monotonous. It is dramatic for the petroleum refining industry to break its markets into semi-annual segments. It is dramatic to give the consumer the benefit of gasoline below cost several months in every year. It is not only dramatic, but philanthropic. But if the industry, perchance, should tire of tragedy and charity, it should mark the economic law and obey it.

County Oil Club Formed

GRAND RAPIDS, MICH., Sept. 24.—The third local oil club in Michigan which has become affiliated with the Michigan Independent Oil Men's Association, was recently organized at Caro, Mich. It is known as the Tri County Oil Club, and consists of Independent oil distributors of Huron, Sanilac and Tuscola counties.

A. L. Adams, of the Michigan Oil Co., Caro, was elected president of the club, and John Todd, of Todd & Ross, Unionville, secretary.

Advertising "Red Hat"

CHICAGO, Sept. 24.—National Petroleum Marketers' Association has announced that five nationally circulated publications are now carrying the "Red Hat" advertising of the Independent Oil Men of America. They are the Saturday Evening Post, Liberty, Collier's Weekly, Literary Digest, and Country Gentleman.

Red Hat Introduced To Twin Cities

ST. PAUL, Sept. 24.—With the closing of the State Fair here on Sept. 12 the Red E Oil Co. ended an unusually successful campaign of advertising which started July 4 and introduced Red Hat gasoline to the Twin Cities. The management of the company believes the introduction has been thorough. All manner of media were used, including two sandwich men.

The first move in the campaign was to begin distributing Red Hat windshield stickers at stations of the Red E Oil Co. Before that novelty had died away 10,000 automobiles on the street were exhibiting the sign. The sticker fad had stimulated curiosity among motorists in the Twin Cities before Red E service stations began to pass out literature explaining the significance of the Red Hat.

When the customers were educated in regard to the significance of the Red Hat, when they knew the story of the Independent Oil Men of America, and their national uniform brand of competitive gasoline, the Red E organization mailed folders and blotters to 2500 prospects. All this was in advance of the newspaper publicity campaign which started on Aug. 15 with a series of "teaser" advertisements.

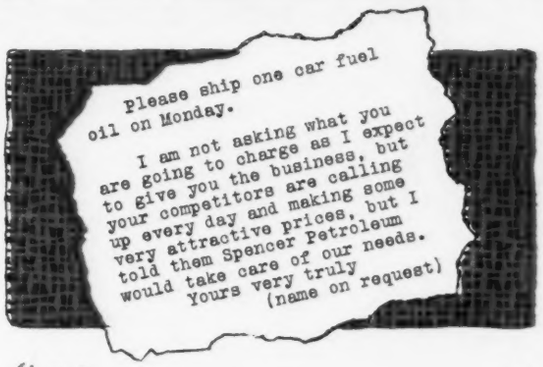
On Aug. 15 and Aug. 17 the motorists of Minnesota, except the 2500, had their curiosity tantalized. Many of them did not know whether Red Hat was a cigar or a theatrical performance. The teaser ads stimulated conversation. Some of the conversation was carried on as from teacher to pupil. On Aug. 18 the newspaper advertisements told the secret. At the same time the sandwich men appeared on the streets.

These sandwich men were carefully selected for their advertising value. Their respective heights compared about like Mutt and Jeff. The tall person represented High Hat (the brand of high test gasoline adopted by the association) and his boards carried were High Hat ads. The short fellow advertised Red Hat. Except that the tall man wore a striped hat and the short man a red one, and that the lettering on their placards was different, they dressed alike, in white, and carried canes. Side by side they walked the main business streets of Minneapolis and St. Paul for 10 days. Everybody that went down town in either city, saw them.

During this time, banners were displayed at all Red E. Oil Co. stations and curb pumps. The banners were 2 by 3 feet, a convenient size to post easily. They carried the Red Hat design and little copy, "Red Hat Gasoline for Sale Here." The result, R. Gulberson of the Red E company states, was a satisfactory increase in gallonage.

The last feature of the campaign of introduction was the Red E Oil Co.'s booth at the Minnesota state fair.

FUEL OIL — GAS OIL — KEROSENE — GASOLINE


Please ship one car fuel
oil on Monday.
I am not asking what you
are going to charge as I expect
to give you the business, but
your competitors are calling
up every day and making some
very attractive prices, but I
told them Spencer Petroleum
would take care of our needs.
Yours very truly
(name on request)

"Ship us a car" says this customer!

Price not even asked

Letters like the one reproduced above go a long way toward explaining the remarkable growth our company has enjoyed.

Such confidence can result from only two causes—vigilant and unvarying square dealing on our part and complete satisfaction on our customers' part.

Because confidence is the basis of pleasant business relations, we are sure you will find it a pleasure to do business with us.

"Conscientious Oil Marketing Guided by Years of Experience"

SPENCER PETROLEUM CO.

All Petroleum Products

CHICAGO
1331-1333 Peoples Gas Bldg.
Harrison 9630-1-2-3-4

WICHITA FALLS
204 City Nat'l Bk. Bldg.
Phone 3480

STABILITY SPENCER SERVICE OILS SATISFACTION

KANSAS CITY
700 Orear-Leslie Bldg.
Harrison 6180-81
Long Distance 65

DETROIT
743 Book Bldg.
Cadillac 8864

TULSA
1039 Kennedy Bldg.
7857
Long Distance 37

Help Your Salesmen

to acquire a working technical knowledge of the selection, application and use of lubricants, by ordering for each one a copy of the PRACTICE OF LUBRICATION by T. C. Thomsen.

It discusses the origin, nature and testing of lubricants and every phase of lubrication engineering.

It is $6 a copy. Make your check payable to—

National Petroleum News

825 Caxton Building — Cleveland, Ohio

More Than A Bulletin—More Than A Catalog

Authoritative on the subjects covered—this publication with 56 pages crammed full of valuable tables, detailed specifications, drawings and other useful data—this book will prove invaluable.

If you are interested in steel tanks, 100 gallons to 80,000 barrels, in stills, agitators, condenser boxes, or in a complete refinery—

If your interest centers in plate construction of any kind, made from steel 1/16″ to 2″ thick—by all means, write for this publication No. 500.

THE YOUNGSTOWN BOILER & TANK CO.
Youngstown, Ohio

Youngstown TANKS
"KEENE MADE"
STANDARDIZED
REG. U.S. PAT. OFF.

More than 200,000 "Youngstown" Tanks in service.

Oil And Grease Formulas

200 formulas, modern in every particular, have been prepared in a simple, non-technical style by Forrest A. Hoff.

They are of value to the refiner, jobber, compounder, broker and lubricating engineer.

Just attach your check to this ad and return it to us now. $50 is the reasonable cost of all this valuable information. Synopsis sent upon request.

National Petroleum News
830 Caxton Building **Cleveland, Ohio**

Among the Geologists

TULSA.—J. Q. Meyers, consulting geologist, has returned to Tulsa after having spent the past year in New Mexico.

TULSA.—C. V. Millikan, petroleum technologist with the Amerada Petroleum Corp., has returned from a vacation spent at Salt Lake City and in the Yellowstone National Park.

DALLAS.—William E. Wrather, consulting geologist, is back in Dallas after having spent the summer in Chicago.

PONCA CITY.—W. A., J. M. van der Gracht will spend the fall in Colorado in the interest of the Marland Oil Co. of Colorado.

PONCA CITY.—A. F. Melcher, formerly of the U. S. Geological Survey and now investigating porosity of oil sands for the Marland Oil Co., is recovering from a broken leg, which he suffered as a result of a collision between a jitney and a trolley car recently in Washington, D. C.

BARTLESVILLE.—Everett Carpenter is now geologist for the Mississippi Valley Oil Co., and has moved from Winfield, Kan., to this city.

TULSA.—David Donoghue, in charge of land and geological departments of the Texas-Pacific Coal & Oil Co., was in Tulsa the past week on a tour of inspection.

TULSA.—V. H. McNutt, consulting geologist, has returned to Tulsa from a trip to Artesia, N. M.

NEW YORK.—C. F. Bowen, chief geologist of the Standard Oil Co. of New Jersey, has returned to New York headquarters from a trip through Europe.

TULSA.—T. K. Harnsberger, division geologist for the Roxana Petroleum Corp., has returned from his vacation, which he spent in Minnesota.

PONCA CITY.—Fritz Aurin, chief geologist of the Marland Oil Co. of Oklahoma, is back at his desk after having undergone an operation for appendicitis.

TULSA.—Paul W. McFarland, formerly geologist for the Venezuelan Sun Oil Co., at Maracaibo, is now with the Twin State Oil Co. in Tulsa. He is not related to R. S. McFarland, chief of the geological and land departments of the same company.

MARACAIBO, VENEZUELA.—Fred H. Kay, who for some time has been in charge of operations here for the Venezuelan Sun Oil Co., has resigned, and is returning to the United States.

TULSA.—S. S. Price, in charge of the Tulsa office of the Dixie Oil Co., is in Chicago on a business trip.

TULSA.—J. N. McGirl is now geologist for the Siurian Oil Co., with head-

quarters in Tulsa. L. A. Mylius is chief geologist, with St. Louis headquarters.

WICHITA.—Charles E. Straub of this city is now geologist for the Dixie Oil Co. in southern Kansas and northern Oklahoma.

TULSA.—W. B. Wilson, chief geologist for the Gypsy Oil Co., and president of the Tulsa Geological Society, has returned from his vacation, which he spent in Missouri.

Quaker Petroleum Adds to Sales Force

LINCOLN, NEB., Sept. 24.—Recent additions to the sales force of the Quaker Petroleum Co., Omaha, include: Arch Stafford, formerly with the Pennsylvania Petroleum Co., Kansas City, vice president in charge of sales; and L. E. Adair, popularly known as "Tiny," who has been assigned southeastern Nebraska as his stamping ground, according to C. M. Sutherland, secretary of the Nebraska Independent Oil Men's Association, in a recent bulletin of that association. Marshall McArthur is president of the Quaker Petroleum Co.

To Install Lube Oil Storage

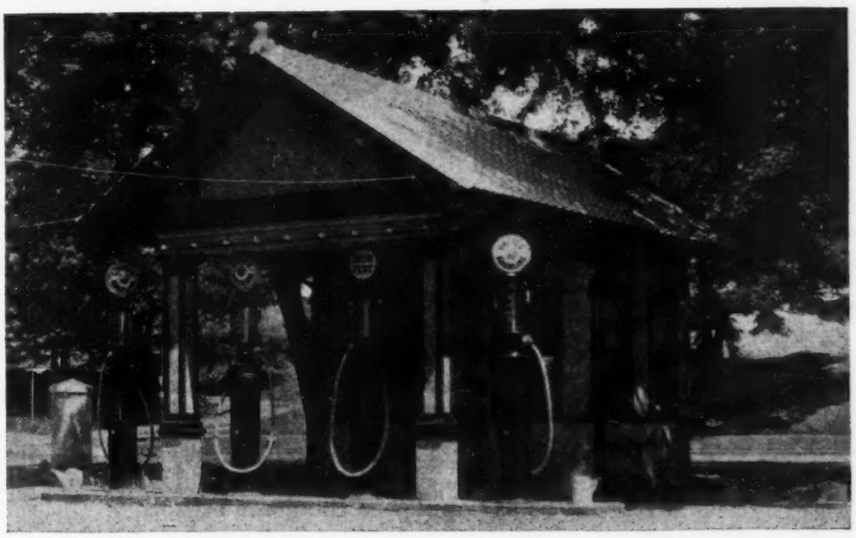
HEREFORD, COLO.—C. W. Findeisen, a dealer in grain, feed, seed and farm machinery, has entered the oil business and installed bulk storage of 30,000 gallons for gasoline and kerosene. Mr. Findeisen also expects to install bulk storage for lubricating oil shortly.

YAKIMA, WASH.—The Continental Oil Co. has taken over The Quality Oil Co. of this city. C. H. Mowrey, former owner of the Quality company, has not announced his future plans, according to E. A. Quist, vice-president and secretary of Paramount Oil Co., Inc., Yakima.

PORTLAND, ORE.—The Lubricating Gasoline Co. has installed Grandberg meters on all its tank trucks for gasoline deliveries, and reports a decrease in losses of 600 gallons in 250,000 gallons delivered during the first month, according to C. W. Knowles, manager at Linton, Ore.

SCOTTSBLUFF, NEB.—Continental Oil Co., with headquarters at Denver, Colo., has closed a deal whereby it becomes owner of the Speltz Oil Co. stations at Grant, Venango and Wallace, Neb., according to Roy J. Witschy, district superintendent for the Continental at Scottsbluff. J. A. Lentz is division manager at Lincoln, Neb.

SALT LAKE CITY.—The Paramount Lubricants Co. has just completed its service station here, according to W. C. Bodell, division manager here for the Guarantee Liquid Measure Co.



Gasoline and Oil Filling Stations
and Steel Buildings

We manufacture the simplest to the most elaborate Stations. Put your own individuality in your Filling Stations—Let us help you work this out.

The Edwards Manufacturing Co.
524-544 Eggleston Ave. Cincinnati, Ohio

RHODES IMPROVED MOTOR OIL DISPENSERS

"Put in a quart!" What Then?

When the motorist wants oil, can you serve him quickly or do you still use the antiquated quart measure method?

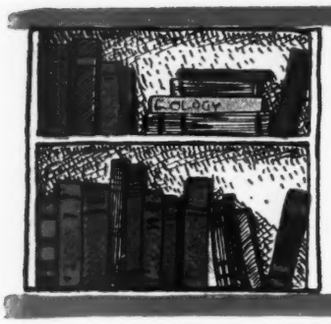
The motorist says, "Put in a quart!" Then if you are equipped with Improved Rhodes Motor Oil Dispensers it's only a matter of a second or two to pick up a Rhodes Dispenser and insert it in the oil port.

Motorists like to be served from these visible, prefilled Dispensers because you do not waste their time and they can see what they are getting.

The new **Rhodes Motor Oil Display Racks**, made in three and five tray capacities, puts your oil conveniently "up front". Write us for folder descriptive of these racks.

Ask your jobber about this time-saving Rhodes method of dispensing motor oil.

JAY B. RHODES COMPANY
KALAMAZOO, MICHIGAN
Toronto St. Louis San Francisco



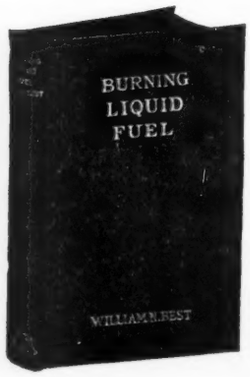
Oil Man's Bookshelf

Interest in improvement makes work a game, not a grind.

THE greatest reason for the popularity of golf is that in the game no man has ever reached perfection.

The game gets you to strive constantly for improvement. When a man gets this idea of "improvement" in his head—the great game of business will be as popular as the game of golf.

Good books devoted to your particular branch of the oil business stimulate your *desire for improvement,* and make your work a game of pleasure and profit.



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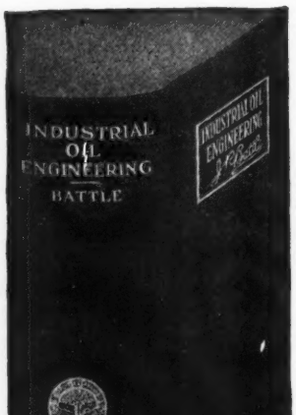

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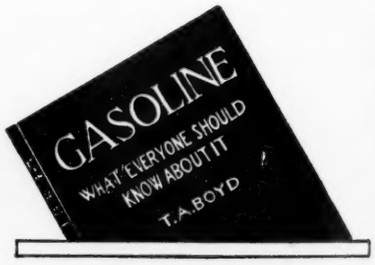

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- ☐ *GASOLINE by T. A. Boyd.*

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_____

HERE AND THERE

F. M. Rowles, western manager of the Tide Water Oil Sales Corp., with headquarters at San Francisco, has just returned to that city after an extensive trip to the Pacific northwest and Rocky Mountain points. Mr. Rowles visited many of the leading Veedol distributors in the Rocky Mountain territory. Men he called on included A. R. Bruder of the Navy Gas Co., Cheyenne, Wyo.; J. E. Cronin, president of the Independent Gas & Oil Co., Salt Lake City; Thomas F. McCusker, vice-president and general manager and J. R. McCusker, sales manager of the Navy Gas & Supply Co., Denver.

* * *

W. C. Pettingell, western sales manager, and George Millar, Jr., automotive lubrication engineer, both of the Tide Water Oil Sales Corp., San Francisco, are in southern California, looking into sales matters with Charles J. Kay, south Pacific district manager. Both Mr. Pettingell and Mr. Millar had been in the north Pacific district with Cy H. Pruner, north Pacific manager, previous to their southern trip.

* * *

C. B. Maggetti, formerly chief clerk at Petaluma, Calif., for the Standard Oil Co. of California, recently purchased the Petaluma Service Station, and is now operating it under the name of the Maggetti Service. He reports a 300 per cent increase in business, and he handles Associated Oil Co. products, according to J. A. Leonard, agent for the latter at Petaluma.

* * *

T. T. Blakely, president of the Blakely Oil &Gas Co., Okmulgee, Okla., was recently at Chicago, en route to New York, on company business. He was expected to return to Okmulgee around Sept. 15, according to T. A. Blakely, secretary and treasurer.

* * *

W. E. Linn, who was formerly with the Atlanta, Ga., office of the Pan American Petroleum Southern Co., is now with the Sherrill Oil Co., Pensacola, Fla., in charge of the Florida territory, reports J. H. Sherrill, president.

* * *

M. Hubert Judd, Community Oil Co., Dalton, Ga., has returned from Wrightsville Beach, N. C., where he spent nearly six pleasant weeks, E. J. Lunsford, manager, said.

* * *

E. D. Hart, agent at Woburn, Mass. for The Texas Co., underwent a serious operation on Aug. 7, and is now recovering at his home.

H. F. Thornton, treasurer of the Nourse Oil Co., Omaha, Neb., who was badly injured in an auto accident recently while driving in Colorado, is slowly recovering, but still unable to attend to business.

L. P. St. Clair, vice president of the Union Oil Co. of California, Los Angeles, who is active in the safety campaign movement among motorists which will be featured by the Union Oil in its entire advertising campaign for 14 months beginning Oct. 15.

Junior Here and There

E. Mettetal, president of the Liberty Oil Corp., Detroit, Mich., announces the birth of a daughter, Marian Therissa, on Sept. 11, weight ringside 7½ pounds, according to James A. Wainwright, treasurer of the Fred G. Clark Co., Detroit. This is the first arrival in the family, and Mr. Wainwright states that inasmuch as Mr. Mettetal is of a bashful nature, he left Mr. Wainwright to do the reporting to National Petroleum News.

* * *

An 8½ pound boy was born on July 25 to Mr. and Mrs. E. T. Baker. Mr. Baker is agent at Sabetha, Kan. for the Sinclair Refining Co.

* * *

Anson Shephard, cashier of Nourse Oil Co., Omaha, Neb., is the proud father of twin girls, born Aug. 24, according to H. T. Thornton, treasure and assistant manager.

G. A. Otis, formerly city salesman at San Diego for the Union Oil Co. of California, was recently promoted to special agent at Lakeside, Calif. where he will have charge of Lakeside, Jacumba and Ramona substations.

E. C. Chamberlis, formerly at Chula Vista, Calif. for the Union, was promoted to agent at Coronado on Sept. 1.

H. W. Hartin was recently transferred from the main station at San Diego, to salesman in Lakeside, Calif. territory, according to L. H. Fish, district sales manager for the Union at San Diego.

* * *

Leon C. Gibbs, of Gibbs Bros., oil jobbers at Portland, Ore., is also assistant grand secretary of the Grand Lodge of Oregon, A. F. & A. M. Arthur E. Gibbs, manager, reports that it is up to him to do the work around the station. He states that he takes off a little time now and then, and just a few days ago, he made a trip around the Mt. Hood loop, which is about 175 miles of very beautiful scenery.

* * *

H. C. Morse, western sales manager of Banner Rock Products Co., Alexandria, Ind., has just returned from an extended trip to the Pacific coast where he was busy spreading the gospel of rock wool insulation among the refiners in that section. Mr. Morse reports the same approval given this insulating material in the trade in that territory, as has been given it in the Mid-Continent field.

* * *

George H. Gage, president of the Lubricating Gasoline Co., Portland, Ore., has just bought a new Flint sedan and drove it to Bend, Ore. over the Columbia highway, and back over the Mackenzy Pass. Mr. Gage says that "you easterners ought to come out west and see some real scenery," according to C. W. Knowles, manager, at Linton, Ore.

* * *

Mrs. Vine B. Peters, who is the wife of Vine B. Peters, owner of the Peters-Munger Oil Co., Charlotte, Mich., won the prize of $25 in gold at the recent Charlevoix meeting of the Michigan Independent Oil Men's Association.

* * *

L. C. Trapp, Chicago manager for Empire Refineries, Inc., and Mrs. Trapp, attended the recent Michigan oil jobbers meeting at Charlevoix, Mich.

* * *

T. W. Dees, who has been salesman for the Sinclair Refining Co. at Lebanon, Ind., has taken over the Sinclair agency there.

Standard Units Oppose Registration Of "Red Hat" Trade Mark

Staff Special

CHICAGO, Sept. 25

STANDARD Oil organizations throughout the country have launched their campaign against the movement of the Independent jobbers to have a uniform competitive motor fuel which they all may market under the same trade name. The first step of the big companies was taken on July 15 when the Standard Oil Co. of Indiana filed an "opposition" to the registration of the trade mark "Red Hat" in the U. S. patent office.

If the Standard Oil companies are not co-operating in their efforts to prevent the Independents from forming an arrangement whereby they may enjoy the benefits of national advertising and a nationally uniform product, their attorneys are acting in unison. Standard Oil Co. of Ohio, through its patent attorneys in Cleveland entered a protest with the patent office at the same time as did the Indiana company, and Standard Oil Co. of Nebraska has witheld action, threatened through the state courts, on advice of the same firm of lawyers that represents the Indiana company.

The contention of the Standard companies is that the trade mark "Red Hat" is an infringement on their ancient and well-known emblem "Red Crown." Of course the burden of proof is on the Standard companies to show that the two insignias are enough alike to cause confusion in the minds of the motoring public that buys gasoline.

Both trade marks are now familiar to the eyes and minds of persons who read National Petroleum News. Attention is directed, by persons in the Standard Oil camp, to five features of similarity. The color scheme is similar, both trade marks are black and red. They are the same shape, round. The adjective "Red" is used in both. A crown and hat are both things to be worn on the head. Both products are motor fuels of about the same specifications.

Standard's procedure through the patent office is only preliminary, according to George A. Chritton, the patent attorney who is handling the case. He is of Dyrenforth, Lee, Chritton & Wiles, a well-known firm of Chicago patent lawyers of whom the Standard Oil Co. is a regular client. "Whether the patent office authorities sustain our action or not, we propose to take the matter to the Federal Courts to enjoin the use of the Red Hat emblem," Mr. Chritton said.

The action taken in the patent office by Chicago lawyers, for the Standard Oil interests, is much like a court action. The instrument filed, (a Notice of Opposition) is similar in form to a bill in chancery asking an injunction. The case will be argued before the Examiner of Interferences, an appointed tribunal for patent office duty, but not a court. The only question the Examiner passes upon is whether controverted trade marks shall be registered for the persons seeking to register them. Registration itself has nothing to do with an emblem's use. That has to be determined by a court. Of course, the decision of the Examiner might have a persuasive effect upon the court when the matter comes to trial, but no more.

When the Independent Oil Men of America, the mutual advertising group of the National Petroleum Marketers Association, adopted Red Hat as the emblem for the gasoline they proposed to distribute from coast to coast, they proceeded in the regular way to have the trade mark registered. Benjamin Wham, the attorney for the N.P.M.A. submitted formal application to the patent office accompanied by drawings of the Red Hat sign—not to mention Purple Hat and Green Hat and High Hat, a whole series of Hats for various grades of gasoline to be used by I. O. M. A. members who wanted them.

Checked Through O. K.

The application and the specimens went to the "Examiner of Trade Marks" in the regular way and the emblem was printed in the Official Gazette of the U. S. Patent Office, issue of June 16, 1925.

Thirty days after a trade mark is published it is officially registered. So Standard oil lawyers got busy right away after June 16 and prepared their "Notice of Opposition," getting it filed on July 15. The Independent Oil Men of America were given until Sept. 29 to answer it.

Beside the similarity of the two trade marks, Mr. Chritton argues that the Independents have no right to a common trade mark at all. He says he thinks he can have the Red Hat insignia barred from registrations for the following reasons:

(1) The I. O. M. A. is a non-profit organization and not, therefore, entitled to a trade mark because it does not have any merchandise to sell. (2) If the Red Hat insignia is anybody's property it belongs to the association's members and not to the association, and the I. O. M. A. has no right to try to register another person's emblem. (3) He points out that the emblem is to be used by several companies and not the one company that manufactures the gasoline, which is to be made at a variety of places.

L. V. Nicholas, president of the N. P. M. A. and trustee of the I. O. M. A. is out of the city at the present time and so is Chauncey W. Martin, head of the legal department of the Standard Oil Co. of Indiana. Benjamin Wham, attorney for the association, discussed the points mentioned in Mr. Chritton's notice of opposition briefly. He took them in their reverse order.

"Red Crown, like Red Hat," he said, "is used by a number of companies and not by one company, and it is not all made at the same plant. In fact, material sold as Red Crown is bought from Independent refiners at times. It will be difficult for anybody to distinguish between an association and its membership, since the members constitute the association, and the only purpose of the I. O. M. A. is to enable different companies to use one trade mark. Federal courts have granted non-profit organizations the right to use trademarks—notably in the case of labor unions. After all, the question gets back to what the Examiner of Interferences may decide about the similarity of the two emblems in question. When the question of similarity is passed upon the other points are inconsequential."

Late in June A. H. Richardson, president of the Standard Oil Co. of Nebraska, served official notice upon Maust Brothers, a firm of Independent jobbers at Falls City, Neb., to discontinue marketing gasoline under the trade name of Red Hat. He claimed that the Red Hat sign looked too much like the Red Crown emblem of the Standard.

Maust Brothers got in touch with N. P. M. A. headquarters at once and were advised to go on marketing Red Hat gasoline, and assured the association would bear all the cost of incidental litigation. Until now, no action has been started in Nebraska against Red Hat.

"I advised against proceeding in the state courts of Nebraska," Mr. Chritton said on Wednesday. "Western courts are unfamiliar with that type of litigation. It will be more expedient to bring the action in a Federal Court somewhere, where trade mark litigation is better understood. This very thing we propose to do, no matter how the patent office procedure comes out, possibly even before the Examiner reaches a decision in Washington. We probably will begin by enjoining some member who is selling gasoline under the name of Red Hat, wherever we find the competition is hurting us."

ON THE LAZY BENCH

For Sale

Forty acre lease, and oil well too,
Keeps one man busy and sometimes two.
Ten years old, eleven in the spring.
Has boiler, bunkhouse and everything
Makes seven barrels of fluid, 'bout half oil,
Separates itself, don't have to boil.
Rods need pulling, the tubing leaks,
Bull wheel's broken, and the jack post squeaks.
If you want this lease inquire within—
Helluva good lease for the shape it's in.

—Bridgeport Driller

◈ ◈ ◈

Hard Luck

Girl in a car,
Going like blazes,
Tickled all over
At the dust she raises
Lets go the wheel,
To fumble in purse,
To take out her powder puff.
Good Night Nurse!

◈ ◈ ◈

How Fish Grow

"Jilson claims to have caught a fourteen-pound trout."

"Why, I didn't know trout grew as large as that."

"They do after you've told the story a few times."

◈ ◈ ◈

Right Again

Teacher: "Give the positive, comparative and superlative degrees of sick."

Pupil: "Sick, sicker, dead."

◈ ◈ ◈

Impossible

Little Emmy: "Let's pretend we're married."

Little Dick: "Can't. Ma says we must keep quiet."

◈ ◈ ◈

Some Bird

Student: "And poor Harry was killed by a revolving crane."

Englishwoman: "My word! What fierce birds you have in America."

◈ ◈ ◈

She—"Now what are you stopping for?"

He (as car comes to halt)—"I've lost my bearings?"

She—"Well, at least you are original. Most fellows run out of gas!"

—Idaho Yarn

An Easy Choice

An old Scotchman, noted for his convivial ways, was threatened with blindness.

"Now, McTavish," said the doctor, "it's like this; you'll have to stop drinking or lose your eyesight, and you must make the choice."

"Ay, weel, doctor," said McTavish, "I'm an auld mon noo, an' I was just thinkin': I hae seen aboot everything that's worth seein'!"

◈ ◈ ◈

Farmer in the engine house counting up his money,
Toolie on the lazy bench feeling mighty funny,
Driller on the drilling stool hanging to the screw.
When in comes the contractor and fires the blooming crew.

—Bridgeport Driller

◈ ◈ ◈

"Hey, any of you fellows lose a wrench?"

"Yea, me."

"What's yer name?"

"Mike Conners."

"You ain't the guy. This wrench b'longs to Pat Pending. His name's on it."

—Carolina Motorist

◈ ◈ ◈

A Mere Cipher

"A proverb says 'Add naught to the truth'."

"I suspect that is what those movie stars do when they are telling what salaries they get—$500 becomes $5000."

◈ ◈ ◈

Grown, Groan

"Oh, Peter, how you have growed since you went away to college!"

"Grown, girlie, grown."

"Why, what will I groan for?"

◈ ◈ ◈

Deserved It

"Why did you tip that boy so handsomely when he gave you your coat?"

"Look at the coat he gave me."

◈ ◈ ◈

"I hear there is only one picture of Rockefeller in existence, and that is a water color."

"Yes, you see they couldn't do him in oil."

◈ ◈ ◈

Judge: Have you ever been up before me?

Accused: I don't know. What time do you get up?

—Cannon Bawl

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and its Products

WRITE OR WIRE
FOR QUOTATIONS

Marietta, Ohio Refinery
operated on Pennsylvania Crude

Findlay, Ohio Refinery
operated on Ohio Crude

Coffeyville, Kansas Refinery
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MARIETTA, O.

Patent Pending

Cleanliness

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CHICAGO
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REG U.S. PAT OFF

REFINERY-TANK WAGON MARKETS

Mid-Continent Markets Maintain Strength for All Products

Staff Special

TULSA, Sept. 26

MID-CONTINENT refinery markets have maintained their strength during the fourth week in September. Every product offered by refiners in this area is moving at prices as high or higher than those prevailing at the beginning of the week.

Refiners have been working at top speed during the week to ship out the gasoline for which they hold orders. Some have bought on the outside to meet the demands of their customers for car numbers. Natural gasolines are almost unobtainable at any price.

There has been no let up in the buying pressure on kerosene. There appears to be almost a shortage of burning oils with the result that prices have advanced again to a new peak for this year and seem likely to advance further.

While heavy oils such as home heating distillates, gas oil and fuel oil have been quiet there is no apparent tendency on the part of refiners to push sales by shading their prices.

September Big Month

Only four more days remain until the end of September, as this is written. And September has been the banner month in point of gasoline business transacted by Mid-Continent refiners. The volume of shipments has been as great as during the big speculative buying wave of early June and much greater than during July and August which normally should be considered as the months of peak demand.

The first three weeks of September were marked by an almost frenzied wave of gasoline buying on the part of jobbers who demanded immediate shipment from the refinery. It was apparent that jobbers had permitted their gasoline stocks to get down to near the danger line while waiting for the market to slide as far as it would.

The policy of waiting out the market almost defeated the ends of the buyers in this case, however. On Sept. 1 refiners reduced their crude runs and in many instances cut loose from some of their crude connections. The big demand coming at a time of curtailed production shot up the market. In adddition to being forced to shop around for gasoline and worry about its being delivered in time, jobbers were forced to pay higher prices than if they had bought on a normal basis during August.

During the last week weather conditions in the middle west and in the northern states have been bad for gasoline business. A cold wave accompanied by rains over a wide area stopped a good many baseball games and caused a reduction in the number of new orders for gasoline being booked by Mid-Continent refiners.

Lull is Welcome

This cessation of buying has been welcomed by manufacturers. Earlier business on their books has been sufficient to keep them busy at their present rate of production. Their reserve stocks are low. Spot gasoline has thus been tight even though new orders have been relatively slow.

U. S. Motor gasoline was selling at 10 cents per gallon last Monday. During a greater part of the week spot sales have been made at 10 to 10¼ cents with some quotations of 10½ cents being made by refiners who were in such a position that they were forced to discourage orders.

With cooler weather at hand demand for 56-58, 450 end point gasoline has fallen almost to the vanishing point. The trade is now asking for a U. S. Motor gasoline with a low initial to give easy starting. Refiners have changed their cuts in accordance with the season and are liquidating any stocks of the summer grades which they have left over. To push this material out as it is without the addition of expensive natural gasoline or the necessity of rerunning, refiners have been willing to take prices lower than the ordinary differential under 58-60 U. S. Motor. At 9¼ to 9½ cents per gallon 56-58 has been ½ to ¾ cent per gallon under Motor.

No new export business has developed but high gravity gasolines have advanced at least ¼ cent. The supply of light gasolines is small and refiners are not inclined to seek orders because of the scarcity and dearness of natural gasolines.

Export Outlook

Looking forward into the winter some refiners have concluded that inland refineries need not expect to share heavily in export business during cold weather unless they sell at low prices. California, Gulf coast and Atlantic coast refiners all have heavy stocks of gasoline which must be carried into the winter.

An analysis of stock figures issued by the U. S. Bureau of Mines shows that there has been a tremendous increase in gasoline stocks held by Louisiana Gulf Coastal plants during the gasoline season. On April 30, the government report showed gasoline stocks in southern Louisiana to be 96,046,485 gallons. The latest government report, that for July 31, shows the same group of refiners were holding 172,620,412 gallons on that date, an increase of 76,500,000 gallons or 79.7 per cent in four months while Mid-Continent plants were cutting their stocks materially. Gulf coastal plants reduced their gasoline stocks during the same time from 171,260,429 gallons to 163,482,208 gallons. East Coast refiners increased their stocks over ten million gallons in the four months from 349,660,906 gallons to 359,920,898 gallons. California refiners probably have reduced their stocks slightly.

Gulf Stocks a Factor

These increases in gasoline stocks on the seaboard must be reckoned with by

(Continued on page 149)

All prices and market information printed herein have been gathered by the staff of National Petroleum News from reliable sources and so far as can be ascertained thoroughly represent the going market as defined for each product on the date given for those particular prices. Both buyers and sellers have been checked in the gathering of this information and actual sales studied.

These prices and this information are subject at all times to correction for errors. Anyone having knowledge of any facts which would indicate anything different from the information which is given, is especially urged to send in those facts to the head office of National Petroleum News at once, or take them up with the nearest representative. All such facts will be promptly and thoroughly investigated.

The staff of National Petroleum News is cognizant of the fact that this market information has come to have a high standing in the industry. It wants to not only maintain that standing, but to improve it and to that end, invites the co-operation of the entire oil industry.

Autocar economies lower distribution costs of Cities Service Oils

One of five Autocars operated by the Cities Service Refining Company in Boston

"WE HAVE just recently placed our order with you for another Autocar truck which will bring our fleet up to five Autocars," writes Mr. C. W. Lewis, Sales Manager of the Cities Service Refining Company, in Boston. "We have been using your equipment for a little more than a year and our operating costs and service derived from this equipment have been entirely satisfactory".

Autocars are saving in the distribution costs of Cities Service oils in many states. The Cities Service Refining Company operate five in Boston; The Crew Levick Company who operate in Delaware, Pennsylvania, New York and New Jersey own a fleet of 36 Autocars; and the Cities Service Oil Company is operating ten Autocars in Detroit and several cities in Ohio.

The Autocar Company, Ardmore, Pa.

ESTABLISHED 1897

Direct Factory "Autocar Sales and Service" Branches or Affiliated Representatives in

*Albany	*Buffalo	*Detroit	*Memphis	*Paterson	*San Francisco	Tampa
*Allentown	*Camden	*Erie	Miami	*Philadelphia	*San Jose	Trenton
Altoona	*Charlotte	*Fall River	*Newark	*Pittsburgh	*Schenectady	*Washington
*Atlanta	*Chester	*Fresno	*New Bedford	*Providence	Scranton	West Palm Beach
*Atlantic City	*Chicago	*Indianapolis	*New Haven	*Reading	Shamokin	*Wheeling
*Baltimore	*Cleveland	*Jersey City	*New York	*Richmond	*Springfield	Wilkes-Barre
Binghamton	Columbus	Lancaster	*Norfolk	*Rochester	*St. Louis	Williamsport
*Boston	*Dallas	*Lawrence	*Oakland	*Sacramento	*Stockton	*Wilmington
*Bronx	Denver	*Los Angeles	Orlando	*San Diego	*Syracuse	*Worcester
*Brooklyn						York

* Indicates Direct Factory Branch

Autocar

gas *and* electric trucks

EITHER OR BOTH - AS YOUR WORK REQUIRES

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

GASOLINE AND NAPHTHA

PENNSYLVANIA	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
52-54 Naphtha	11¾-11¾	11¼-11½	11¼-11½
54-56 Naphtha	12 -12¼	11¾-12	11⅝-12
58-60 Gasoline	12 -12¼	12 -12¼	12 -12½
60-62 Straight-run gasoline	12¾-13	13 -13¼	13 -13¼
62-64 Straight-run gasoline	14¼-14½	14 -14¼	13½-14
64-66 Straight-run gasoline	15 -15¼	15 -15¼	14 -14½
68-70 Straight-run gas. 350 E.P.	16 -16½	16 -16½	15¾-16¼
68-70 Straight-run gas. 305-320 E.P	-19½	-19½	19 -20
70-72 Straight-run gas. 300-305 E.P	-21½	-21½	-21
OKLAHOMA			
48-50 450 E. P. naphtha	9¼- 9½	9 - 9¼	- 8
50-52 450 E. P. naphtha	9¼- 9½	9 - 9¼	- 8
56-58 450 E. P. gasoline	9¼- 9½	9⅜- 9½	8⅜- 8¾
56-58 U. S. Motor gasoline	9¾-10	- 9¾	8¾- 9
58-60 U. S. Motor 437 E. P.	9¾-10¼	-10	9 - 9¼
60-62 400 E. P. gasoline	11 -11¼	11 -11¼	10½-10¾
64-66 375 E. P. gasoline	12 -12¼	11¾-12	-11¼
68-70 350 E. P. gasoline	13¼-13½	13 -13⅜	12¾-13
KANSAS*			
56-58 U. S. Motor gasoline	9¾-10	9¼- 9¾	- 9
58-60 U. S. Motor gasoline	10¼-10½	10 -10¼	9⅜- 9⅝
60-62 400 e. p. gasoline	11¼-11¾	10¾-11¼	10⅝-11
64-66 375 e. p. gasoline	12½-12¾	12 -12½	11½-11¾

*F. O. B. refinery, Kansas destination.

NORTH TEXAS			
48-52 450 E. P. naphtha	8¾- 9	8¾- 9	7¾- 8
56-58 450 E. P. gasoline	9⅜- 9½	9¼- 9½	- 8½
58-60 450 E. P. gasoline	9½- 9⅝	9½- 9¾	- 8¾
58-60 U. S. Motor gasoline	9¾-10	9¾-10	- 9
60-62 400 E. P. gasoline	10¾-11	10½-10⅝	10¼-10⅜
64-66 390 E. P. gasoline	11¼-11⅜	11¼-11⅜	10⅞-11⅛
64-66 375 E. P. gasoline	11⅜-11¾	11⅜-11¾	-11¼
68-70 350 E. P. gasoline	-12¾	12½-12¾	11¼-12½
NORTH LOUISIANA			
56-58 U.S. Motor gasoline	10 -10¼	-10	- 9¼
58-60 U.S.Motor gasoline	10¼-10½	-10¼	9¼- 9½
ARKANSAS			
58-60 450 E. P. gasoline	10¼-10½	-10¼	- 9¼
58-60 U. S. Motor gasoline	10½-10¾	-10½	- 9½
64-66 375 E. P. gasoline	12¼-12½	12¼-12½	11¾-12
CALIFORNIA			
54-56 U. S. Motor gasoline	- 9	- 9	- 9
42-45 Engine distillate, 445-480 E.P.	7 - 8	7 - 8	7½- 9½

Note: This is without the 2-cent state tax included in the price of California refiners for shipments within the state.

NEW ENGLAND (F. O. B. Boston and Fall River)			
U. S. Motor gasoline	-12½	-12	-12

NATURAL GASOLINE

(Note: End point of all grades, not over 375°F.)

OKLAHOMA			
Grade Double A	-14½	-13¼	-12
Grade A	-14½	-13¼	-12
Grade Double B	-14½	-13¼	-12
Grade B	-14½	-13¼	-12
Grade C	-14½	-13¼	-12

NOTE—Specifications adopted by Ass'n of Nat. Gaso. Manufacturers:
Grade Double A—80-87.9 gravity, 90% recovery, not over 375 E. P.
Grade A—72-79.9 gravity, 90% recovery, not over 375 E. P.
Grade Double B—84-92 gravity, 85% recovery, not over 375 E. P.
Grade B—76-83.9 gravity, 85% recovery, not over 375 E. P.
Grade C—80-90 gravity, 78% recovery, not over 375 E. P.

NORTH TEXAS			
*Grade Double A	-14½	-13¼	-12
*Grade A	-14½	-13¼	-12
*Grade Double B	-14½	-13¼	-12
*Grade B	-14½	-13¼	-12
Grade C	-14½	-13¼	-12

*F. O. B. Breckenridge.

CALIFORNIA			
78-78 375 E. P.	12½-13	12½-13	13 -13½
PENNSYLVANIA			
68-70 Grav. 437 E. P.	13½-14	13½-14	13 -13½
64-66 Grav. 437 E. P.	13¾-14	13½-14	13 -13½
60-62 Grav. 437 E. P.	13¼-13¾	13¼-13¾	12¾-13
68-70 Grav. 420 E. P.	14 -14½	14 -14¼	13½-13¾

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	6⅜- 6¾	6¾- 6¾	- 6¾
46 Water White Kerosene	- 7¼	- 6¾	6½- 6¾
47 Water White Kerosene	7½- 7¾	- 7½	7¼- 7½
300 Burning Oil	7½- 7¾	7½- 7¾	- 7
OKLAHOMA			
41-43 Water White Kerosene	5 - 5¼	5 - 5¼	4¾- 5
42-44 Water White Kerosene	5¾- 5½	- 5½	5¼- 5½
KANSAS			
41-43 w. w. kerosene	5½- 5¾	5½- 5¾	5 - 5¼
NORTH TEXAS			
41-43 Water White Kerosene	4⅞- 5	4⅞- 5	4⅝- 4⅞
42-44 Water White Kerosene	- 5¼	5⅛- 5¼	4⅞- 5
NORTH LOUISIANA			
41-43 Water White Kerosene	- 5¼	- 5¼	- 5
ARKANSAS			
41-43 Water White Kerosene	5⅛- 5⅜	5¼- 5½	5¼- 5½
CALIFORNIA			
40-42 Water White Kerosene	7½- 8	7½- 8	7½- 8
NEW ENGLAND (F. O. B. Boston and Fall River)			
40-43 Water White Kerosene	- 6⅞	- 6⅞	- 6⅞

NEUTRAL OILS

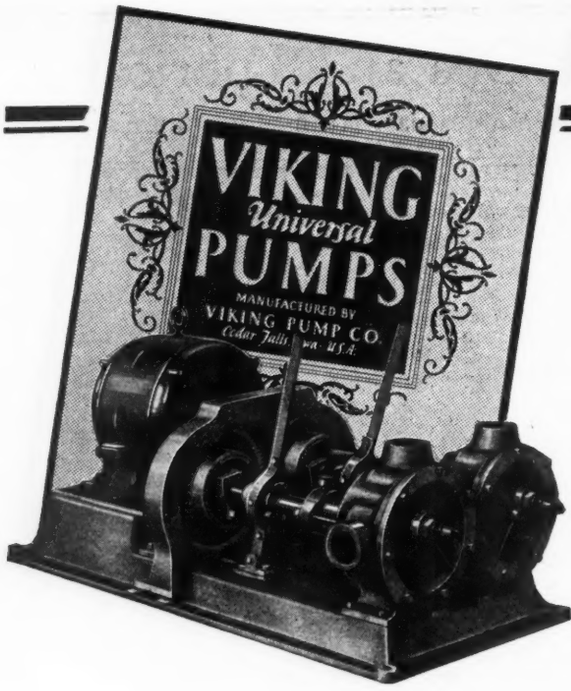
PENNSYLVANIA (Viscosity at 70°F.)			
220 Vis. No. 3 Assoc. Filt	25¼-26	25 -25½	-26
200 Vis. No. 3 Assoc. Filt	23 -23½	23 -23½	22½-23
180 Vis. No. 3 Assoc. Filt	21 -21½	21 -21½	20½-21
150 Vis. No. 3 Assoc. Filt	17 -17½	17½-18	17 -17½
(Non-Viscous)			
34 Grav. 350-360 Flash	7¼- 7½	7 - 7¼	7 - 7¼
36 Miners Neutrals 300-305 Flash	6½- 6¾	6¼- 6¾	6½- 7
OKLAHOMA (Viscosity at 100°F.)			
70 Vis. No. 2½-S color	5¼- 7	5¼- 7	5¼- 7
100 Vis. No. 2 color	6 - 8	6 - 8	6 - 8
100 Vis. No. 2½-S color	5¼- 5½	5¼- 5½	5 - 5½
150 Vis. No. 3 color	9¾-10	9¾-10	9¾-10
150 Vis. No. 4 color	9½- 9¾	9½- 9¾	9½- 9¾
180 Vis. No. 3 color	10¼-10⅜	10¼-10⅜	10¼-10⅜
180 Vis. No. 4 color	10 -10¼	10 -10¼	10 -10¼
180 Vis. No. 5 color	9¾-10	9¾-10	9¾-11
200 Vis. No. 3 color	11¼-11½	11¼-11½	11 -11½
200 Vis. No. 4 color	11 -11¼	11 -11¼	11 -11¼
200 Vis. No. 5 color	9¼-11	9¼-11	9 -11
220 Vis. No. 3 color	13¾-14	13¾-14	13¾-14
220 Vis. No. 4 color	13¼-13½	13¼-13½	13¼-13½
220 Vis. No. 5 color	12¾-13	12¾-13	12¾-13
240 Vis. No. 3 color	15¼-15½	15¼-15½	15¼-15½
240 Vis. No. 4 color	14¾-15	14¾-15	14¾-15
240 Vis. No. 5 color	14¼-14½	14¼-14½	14¼-14½
280 Vis. No. 3 color	16¾-17	16¾-17	16¾-17
280 Vis. No. 4 color	15¾-16	15¾-16	15¾-16
280 Vis. No. 5 color	14¾-15	14¾-15	14¾-15
300 Vis. No. 5-6 color	-17½	-17½	-17½
GULF COASTAL (Viscosity at 100°F; cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	7¼- 7¾	7¼- 7¾	7½- 8
200 Vis. No. 3 Color Unfilt. Pale	11½-12	11½-12	12 -12½
300 Vis. No. 3 Color Unfilt. Pale	13 -13½	13 -13½	13½-14
500 Vis. No. 3½ Color Unfilt. Pale	15 -15½	15 -15½	15½-16
750 Vis. No. 4 Color Unfilt. Pale	19½-20	19½-20	20 -20½
200 Vis. No. 5½ Color Red Oil	10 -10½	10 -10½	10½-11
300 Vis. No. 5½ Color Red Oil	12 -12½	12 -12½	12½-13
500 Vis. No. 6 Color Red Oil	13½-14	13½-14	14 -14½
750 Vis. No. 6 Color Red Oil	17½-18	17½-18	18 -18½
CALIFORNIA (Viscosity at 100°F.)			
100 Vis. No. 2 color	13½-14½	13½-14½	13½-14½
100 Vis. No. 3 color	9 -10	9 -10	9 -10
200 Vis. No. 3 color	14½-15½	14½-15½	14½-15½
300 Vis. No. 3 color	14 -16	14 -16	14 -16
450 Vis. No. 3½ color	19½-20½	19½-20½	19½-20½
550 Vis. No. 3 color	21½-22½	21½-22½	21½-22½
600 Vis. No. 3½ color	23½-24½	23½-24½	23½-24½
100 Vis. No. 5 color	8 - 9	8 - 9	8 - 9
200 Vis. No. 5 color	13½-14½	13½-14½	13½-14½
300 Vis. No. 5 color	14 -15	14 -15	14 -15
400 Vis. No. 5 color	16 -17	16 -17	16 -17
500 Vis. No. 5 color	17 -18	17 -18	17 -18
600 Vis. No. 6 color	18 -19	18 -19	18 -19
700 Vis. No. 7 color	19½-20½	19½-20½	19½-20½

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Bright Stock	30 -35	30 -35	30 -35
150-160 Vis. at 210° Bright Stock	27 -31	27 -31	27 -31
600 E Stock, 140-150 Vis. @ 210°	18¼-20	18¼-20	18¼-20
600 Steam Refined Olive Green	7¼-10	7¼-10	7 -10
600 Steam Refined Dark Green	5½- 6	5½- 6	5½- 6
Black Oil	4¾- 5	4¾- 5	4¾- 5
PENNSYLVANIA (1-inch Immersion Test)			
600 Steam Refined	15½-16	15½-16	15 -15¼
635 Steam Refined	18¾-19¼	18¾-19¼	17⅞-18
650 Steam Refined	21¼-21¾	21 -21½	20 -20½
600 Flash	24½-25	24½-25	24 -25
600 Warren E	21 -21½	21 -21½	21 -21½
600 Oil City E	20½-21	20 -20¾	20 -20½
600 Filtered D	26 -26½	26 -26½	26½-27
Cold Test Stocks (bright filtered)	-39	-39	38 -39
Cold Test Stock (dark filtered)	36 -37	36 -37	35 -36
Black Oil	8 - 8½		7½- 8

(Note—Prices of total immersion test goods average 1 to 3 cents per gallon higher.)

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.



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Viking Pump Co. of Canada, Ltd.	Walkerville, Ontario
Menge Pump & Mach. Co., Ltd.	862 Tchoupitoulas St., New Orleans, La.
De Laval Pacific Co.	61 Beale St., San Francisco, Cal.
Kerr Machinery Corp.	Kerr Building, Detroit, Mich.
Hayes Pump & Machinery Co.	94 Pearl St., Boston, Mass.
The Schirmer Co.	750 Prospect Avenue, Cleveland, Ohio
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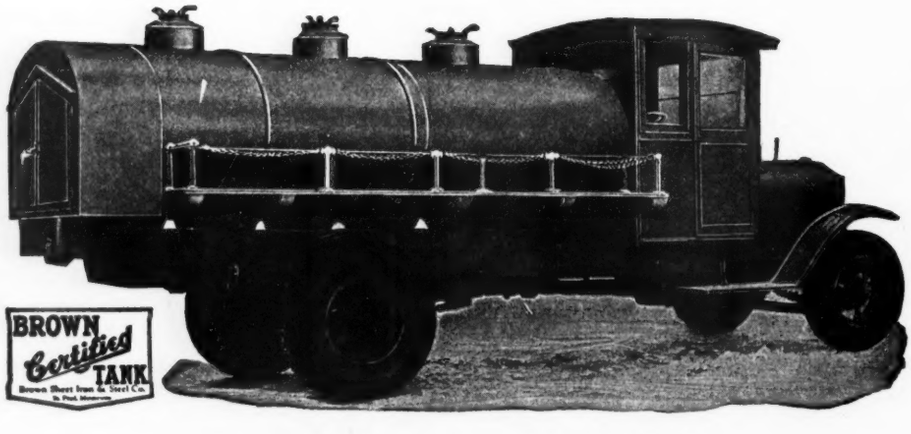

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Truck Tank designed for fuel oil.

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Licensed Manufacturers of Van Tilburg Rectifying Process

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

WAX

PENNSYLVANIA	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
(Per Pound New York)			
122-124 White Crude Scale	- 5¼	- 5¼	- 5¼
124-126 White Crude Scale	- 5¼	- 5¼	- 5¼
OKLAHOMA			
(Per Pound Group 3)			
124-126 White Crude Scale	- 5¼	5¼- 5¼	- 5¼
CALIFORNIA			
White Crude Scale	7½- 8	7½- 8	7½- 8

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil	5¼- 5¼	5¼- 5¼	5¼- 5¼
30-34 Fuel Oil	- 5	- 5	- 5
28-30 Fuel Oil	- 5	- 5	4¾- 5
OKLAHOMA			
38-40 Straw distillate	3¼- 4	3¼- 3¼	- 3¼
36-38 Straw distillate	3¼- 3¼	3¼- 3¼	3½- 3¼
32-36 Gas oil	3¼- 3¼	3¼- 3¼	3¼- 3¼
26-30 Fuel oil (Bbl.)	1.10 -1.15	1.10-1 12½	1.10-1.12½
24-26 Fuel oil (Bbl.)	1.05 -1.07½	1.05-1.07½	1.05-1.10
24-26 Fuel oil (Buyers' cars)	1.02½-1 05	1.02½-1.05	1.02½-1.05
20-22 Fuel oil (Bbl.)	1.02½-1 05	-1.05	-1.05
Road oil	1.15-1.20	1.15-1.20	1.10 -1.20
KANSAS*			
38-40 Light straw distillate	3¼- 4	3¼- 4	3¼- 4
36-38 Light straw distillate	3¼- 3¼	3¼- 3¼	3¼- 3¼
32-36 gas oil	3¼- 3¼	3¼- 3¼	3¼- 3¼
24-26 fuel oil	1.15 -1.20	1.15-1.20	1.15 -1.20
26-30 fuel oil	1.20 -1.25	1.20-1.25	1.20 -1.25

*F. O. B. refinery, Kansas destination.

NORTH TEXAS	Prices Sept. 28	Prices Sept. 21	Prices Sept. 14
36-40 Straw Distillate	3½- 3¼	3¼- 3¼	3¼- 3¼
32-36 Gas Oil (Gal.)	3 - 3¼	3¼- 3¼	- 3¼
24-26 Fuel, per bbl	1.07½-1.12½	1.10 -1.15	1.10-1.17½
GULF COASTAL			
Fuel	1.45-1.50	1.45-1.50	1.45-1.50
Gas Oil	4¼- 4¼	4¼- 4¼	4¼- 4¼
NORTH LOUISIANA			
32-36 Light Gas Oil (Gal.)	3¼- 3½	3¼- 3½	3¼- 3½
18-22 Fuel Oil (Bbl.)	1.10-1.20	1.00 -1.10	1.00 -1.05
ARKANSAS			
32-36 Gas Oil	3¼- 3¼	- 3¼	- 3¼
Road Oil	- 3	- 3	- 3
CALIFORNIA*			
14-18 Fuel Oil (Bbl.)	1.20	1.20	1.20
14-18 Bunker Oil (Bbl.)	1.20	1.20	1.20
24-30 Gas Oil (Bbl.)	1.45	1.45	1.45
27 + Diesel Oil (Bbl.)	1.45	1.45	1.45

*Prices at southern California points. Prices at San Francisco and other coast points 5c per bbl. higher. San Joaquin valley 10c per bbl. less.

NEW ENGLAND (F. O. B. Boston and Fall River)			
30-32 gas oil (gal.)	- 5¼	- 5¼	- 5¼
Fuel Oil (Bunker C) bbl	-1.67	-1.67	-1.67

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

(Continued from Page 145)

inland refiners as a potential competitive factor. In addition to the possibility that the seaboard refiners may bid actively for export business during the winter, the Louisiana Gulf Coast stocks constitute a threat to the Mississippi and Ohio river valley markets which are the chief consuming territories for the Mid-Continent output.

Freight rates from New Orleans and vicinity to Ohio, Indiana, parts of Illinois, Iowa and Missouri are equal to or lower than rates from Group 3. A decision by New Orleans refiners to dump gasoline in this market undoubtedly would result in low prices such as were experienced a year ago when a similar situation arose.

Natural Gasoline Scarce

Natural gasoline is scarcer in the Mid-Continent field than it has been at any previous time within the memory of manufacturers here. It appears almost impossible to find even stray cars of any grade and so few cars are being sold that it can scarcely be said that there is a market for the commodity. Nearly every manufacturer has his production obligated for the remainder of this month and all of October.

There is a tendency among some refiners to feel that some of the larger manufacturers are holding their material off the market and that they have some material in storage. This is denied by the manufacturers.

The big natural gasoline demand is accounted for by the necessity of refiners who must build up gasoline to winter or export requirements at this season. Natural gasoline production apparently cannot be increased much above its present level unless new oil fields are developed and meanwhile demand appears to be greater than supply as evidenced by the the high premiums over U. S. Motor prices that have been paid throughout the present gasoline season.

PLATT'S
OILGRAM
Petroleum Markets-Every Day

GASOLINE prices at Mid-Continent refineries showed stiffening every day the past week.

Yet—Standard of New Jersey on Saturday (Sept. 26) cut gasoline ½ to 1 cent throughout its territory.

—a situation when every jobber and refiner in the country wants the most ACCURATE and IMMEDIATE information he can get on the market.

PLATT'S OILGRAM, issued daily from Tulsa, Chicago and Cleveland will keep you in constant touch with crude, refined, tank wagon and export markets —by telegraph and fast mail.

SAVE MONEY by ordering your service *today*.

TULSA—608 Bank of Commerce Bldg.
CHICAGO—360 N. Michigan Ave.
CLEVELAND—812 Caxton Bldg.

Kerosene Scarce

For several weeks buyers have had difficulty in filling their kerosene requirements. The 42-44 grade is almost unobtainable, only a few refiners being willing to make it. Buyers of 41-43 are continually shopping through the field. Some refiners with their own stations are in the market while those refiners with station systems who have a supply on hand are not willing to sell goods which they know they will need themselves a little later.

Gas oil and fuel oil stocks have continued for several weeks to increase throughout the Mid-Continent field and there is now a rather large supply on hand. With cold weather near and the coal strike still on refiners are not inclined to push heavy oil sales. There have been a few instances in which gas oil prices have been shaded slightly to obtain orders but for the most part all heavy oils are well held.

There has been a slight reduction in the rate of shipment of lubricating oils, according to some refiners, but others say they are behind with their orders and have observed no lessening in demand. Prices on lubricating oils are fairly well held in all quarters, however.

Wax demand has been good at around 5¼ cents per pound for October and November delivery.

Gasoline Trend is Downward in Chicago Resale Market

Staff Special

CHICAGO, Sept. 26.

GASOLINE prices in Chicago are a little higher in the spot resale market than a week ago. That, however, is unimportant in view of the fact that the market is inclining the other direction. The tendency was upward last Saturday but today the slant was downward. The gasoline tank wagon price reduction by the Standard Oil Co. of New Jersey today did not help the situation any. Most marketers were predicting a softer market Monday.

Spot prices of U. S. Motor gasoline to the trade Friday and Saturday were about uniform throughout the trade at 10 cents a gallon. Resale marketers could get that price shaded a bit in Group 3, but even they were not bidding strong for many of them bought long on the rising market earlier in the week. Gasoline of 56-58 gravity is gradually vanishing. It can be had by jobbers as low as 9¼ cents a gallon but the bulk of goods last week moved at 9½ cents.

Slow is the only fair way to describe the present gasoline market. Refiners' quotations are firm but buying is dull. Of course at this season jobbers naturally begin to expect market concessions and besides the weather has not stimulated motoring enough to cause distributors to look to their storage. Rains fell over Standard Oil Co. of Indiana territory early in the week. There was rain over the southern half of the Chicago forecast district for about four days and then rain fell in the southwest. The forecast for next week is not much more promising. The weather man forecasts general rains at both ends of the week with temperatures normal or below.

The kerosene market is dull also. The heavier kerosene, 41-43 gravity, is firm at 5¼ cents. Some cheaper goods were around early in the week but the growing demand for distillate caused it to disappear. The 42-44 kerosene is slightly weaker but the price is virtually the same as it was a week ago, 5½ to 5⅜ cents.

Light oil fuels for domestic use have shown some activity with the coming of cool damp days during the last week. Distillate of 38-40 gravity is firm and fairly active at 4 cents a gallon flat. That price could not be shaded much or often during the latter half of last week and the market's tendency appeared to be upward. Jobbers all over the country are closely in touch with their demand and refiners think buying will be brisk when it begins. Gas oil prices have been steady but trading has not developed greatly. Most marketers are getting 3¼ cents a gallon for the dark and 3⅜ for the straw.

It is surprising to observe the light fuel season open with a better demand for distillate than for gas oil. Most of the newer and popular burners now consume gas oil. The quick demand for distillate after the autumn rains indicates that many of the old models of domestic burners using light fuel are still in use.

The fuel oil market is almost featureless. Refinery fuel of 24-26 gravity is quoted generally at $1.05 to $1.10 per barrel. Smackover crude fuel at 97½ cents to $1.02½ a barrel is a little weaker if any different from a week ago.

Week's Price Changes Tank Wagon Markets

Gasoline Changes

Standard of New Jersey—T.w. and s.s. 1 cent through territory, excepting at Baltimore, Washington, D. C., and state of New Jersey, which were reduced ½ cent, and Charleston, Parkersburg and Wheeling, W. Va., which remain unchanged, **Sept. 26.** This reduction brought tank wagon to 15 cent level throughout territory, not including state taxes. Last previous change was ½ cent cut through territory, except New Jersey, Baltimore and Washington, Sept. 19.

Standard of Indiana—See elsewhere in market form of this issue for local changes.

Standard of Nebraska—T.w. and s.s. at Omaha only reduced 1 cent, to 12 and 14 cents respectively, Sept. 21.

Canadian—T.w. and s.s. advanced 1 cent at Vancouver, B. C., to 24 and 28 cents respectively, including 3 cent tax, Sept. 15.

Kerosene Changes

Standard of New Jersey—Reduced 1 cent in North and South Carolina, to 13 cents in former state, and 13.5 cents in latter state, Sept. 26.

Canadian—Advanced 1 cent to 23 cents at Vancouver, B. C., Sept. 15.

Give 4-Cent Differential

LOS ANGELES, Sept. 26.—A 4-cent differential between gasoline tank wagon and service station prices has been established in the entire Pacific slope marketing territory. One of the larger companies is said to have been selling dealers at a 5-cent differential and a medium sized. The lowest priced gasoline at the service station in Los Angeles is seven gallons for 90 cents or about 12.85 cents per gallon.

Gasoline Prices Cut at Des Moines

CHICAGO, Sept. 26.—On Sept. 22, Standard Oil Co. of Indiana reduced prices of gasoline at Des Moines, Ia., 2 cents a gallon to 15.5 cents tank wagon, 17.5 cents service station.

Standard Oil Co. of Indiana reduced the tank wagon price of kerosene at Kansas City 1 cent to 8.3 cents a gallon on Sept. 16.

The Kansas City gasoline price was normal prior to Aug. 25 when the general 2-cent cut brought the tank wagon down to 19.9 cents including state and city tax. Aug. 29 the gasoline price was cut 2 cents again to 17.9 cents. Then gasoline was cut 2 cents again on Sept. 7 to 15.9 cents. Now in Kansas City the tank wagon price is 16.9 cents including all taxes, and the service station price is 17.9 cents.

On Sept. 4 the tank wagon price of kerosene was reduced 1 cent to 9.3 cents.

The tank wagon price of gasoline at Wichita, Kan., was normal before Aug. 25 when the general 2-cent decline brought it to 18.8 cents. On Aug. 29 a 5-cent reduction brought the price to 13.8 cents. Then on Sept. 2 a 3-cent decline made the price 10.8 cents. Today at Wichita the tank wagon price of gasoline is 10.8 cents and the retail price is 12.8 cents. The kerosene price is also 10.8 cents tank wagon.

Another active price war is in Minneapolis and St. Paul. There on Sept. 23 the Standard Oil Co. of Indiana made a cut of 1.9 cents a gallon on gasoline making the tank wagon price 15.2 cents including the tax and the service station price 17.2 cents.

FLINT, MICH.—Robert J. Morrison has purchased his partner's interest in the Central Oil Co. of this city, and is now operating under the name of Morrison Oil Co. The company handles Shell products. It just completed a warehouse, garage and filling station here.

Sinclair Cuts Service

CLEVELAND, Sept. 28.—Sinclair Refining Co. on Sept. 23 reduced the service station prices of gasoline at all its Cleveland and Toledo, O., stations 2 cents, to 19 cents. Its tank wagon price remains 19 cents, including 2 cent tax.

This cut in the service station price was made to meet competitive conditions, according to the company.

Coupon books are at par, which enables all customers to buy their gasoline at the same price, whether they purchase coupon books or not.

The Standard Oil Co. of Ohio is maintaining a price of 21 cents at the service station.

LA PORTE, IND.—La Porte Independent Oil Co. has taken over the distribution of products of the Valvoline Oil Co., Chicago, in five counties, according to Robert Bruce White, salesmanager of the northwestern division of the Valvoline at Chicago.

Tank Wagon, Service Station Markets for Gasoline and Kerosene In United States Territories and Canada

BELOW are given in cents a gallon, the tank wagon price of gasoline without the special taxes levied against motor fuels by many states, the amount of the state taxes, the total tank wagon price, with tax added in and the service station or retail price of gasoline as quoted by the Standard Oil Companies in their various marketing territories. The right hand column is the tank wagon price of kerosene. By tank wagon price is meant the price to resale agents or dealers.

These Prices in Effect September 28, 1925

S O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Atlantic City, N. J.	15	0	15	*	12.5
Newark, N. J.	15	0	15	17	12.5
Annapolis, Md.	15	2	17	*	12
Baltimore, Md.	15	2	17	20	10
Cumberland, Md	15	2	17	20	12
Washington, D. C.	15	2	17	20	11
Danville, Va.	15	3	18	*	13
Norfolk, Va.	15	3	18	21	13
Richmond, Va.	15	3	18	21	13
Roanoke, Va.	15	3	18	21	13
Petersburg Va.	15	3	18	*	13
Williamsburg, Va.	15	3	18	*	13
Charleston, W. Va.	15	3½	18.5	21.5	13
Clarksburg, W. Va.	15	3½	18.5	21.5	13
Keyser, W. Va.	15	3½	18.5	*	13
Parkersburg, W. Va.	15	3½	18.5	21.5	13
Wheeling, W. Va.	15	3½	18.5	21.5	13
Charlotte, N. C.	15	4	19	22	13
Hickory, N. C.	15	4	19	*	13
High Point, N. C.	15	4	19	*	14
Mt. Airy, N. C.	15	4	19	*	13
Salisbury, N. C.	15	4	19	*	13
Charleston, S. C.	15	4	19	23	13.5
Columbia, S. C.	15	4	19	23	13.5

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK

*New York City	17	0	17	21	13
Albany, N. Y.	†18	0	†18	†20	13
Buffalo, N. Y.	16	0	16	19	13
Rochester, N. Y.	†16	0	†16	†18	13
Syracuse, N. Y.	16	0	16	18	12
Boston, Mass.	16	0	16	20	11
Augusta, Me.	18	3	21	24	13
Manchester, N. H.	18	2	20	24	13
Burlington, Vt.	18	2	20	23.5	13

*In steel barrels.
†At Rochester and Albany, Standard sells two grades of gasoline, the above price applying to its Socony grade, and another grade being sold 2c below this price.

ATLANTIC REFINING

Pittsburgh, Pa.	17	0	17	*22	14
Philadelphia, Pa.	17	0	17	*22	14
Allentown, Pa.	17	0	17	*22	14
Erie, Pa.	17	0	17	*22	14
Scranton, Pa.	17	0	17	*22	14
Altoona, Pa.	17	0	17	*22	14
Dover, Del.	17	2	19	22	14
Wilmington, Del.	17	2	19	22	14
Providence, R. I.	16	1	17	20	13
Springfield, Mass.	16	0	16	19	13
Worcester, Mass.	16	0	16	19	13
Hartford, Conn.	16	2	18	21	12
New Haven, Conn.	16	2	18	21	13
Boston, Mass.	16	0	16	19	13

*Contains 2-cent tax collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY

Lexington, Ky.	15	3	18	21	14
Louisville, Ky.	17	3	20	23	12
Covington, Ky.	16	3	19	22	14
Clarksdale, Miss.	16	3	19	22	12
Jackson, Miss.	16	3	19	22	9
Natchez, Miss.	15.5	3	18.5	21.5	11.5
Vicksburg, Miss.	15.5	3	18.5	21.5	11.5
Birmingham, Ala.	17	2	19	22	14.5
Mobile, Ala.	16	2	18	21	11
Montgomery, Ala*	18	2	20	23	15.5
Atlanta, Ga.	17.5	3½	21	24	13
Augusta, Ga.	18.5	3½	22	25	14.5
Macon, Ga.	18.5	3½	22	25	15.5
Savannah, Ga.	16.5	3½	20	23	13
Jacksonville, Fla.	16	4	20	23	13
Miami, Fla.	18	4	22	25	14.5
Tampa, Fla.	16	4	20	23	13
Pensacola, Fla.	16	4	20	23	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

S. O. INDIANA

	Gasoline T W.	Tax	Total	S.S.	Oil T.W.
Chicago, Ill.	†16	0	†16	18	11
Decatur, Ill.	12	0	12	14	11.5
E. St. Louis, Ill.	15.1	0	15.1	17.35	10.6
Joliet, Ill.	16.4	0	16.4	18.4	11.7
Peoria, Ill.	11	0	11	13	11.5
Quincy, Ill.	16.2	0	16.2	18.2	11.5
Indianapolis, Ind.	16.2	3	19.2	21.2	11.7
Evansville, Ind.	16	3	19	21	11.5
South Bend Ind.	16.4	3	19.4	21.4	11.9
Detroit, Mich.	16.8	2	18.8	20.8	12.2
Grand Rapids, Mich.	16.7	2	18.7	20.7	12.1
Saginaw, Mich.	16.9	2	18.9	20.9	12.3
Madison, Wis.	16.3	2	18.3	20.3	11.5
Milwaukee, Wis.	16.1	2	18.1	20.1	11.3
La Crosse, Wis.	17.2	2	19.2	21.2	12.4
Minneapolis, Minn.	15.1	2	17.1	19.1	12.6
Duluth, Minn.	17.5	2	19.5	21.5	12.6
Mankato, Minn.	17.1	2	19.1	21.1	12.4
Des Moines, Iowa.	15.5	2	17.5	19.5	11.9
Davenport, Iowa.	16.5	2	18.5	20.5	11.9
Sioux City, Iowa.	16	2	18	20	11.5
Mason City, Ia.	16.5	2	18.5	20.5	11.9
St. Louis, Mo.	**15.6	2	17.6	19.9	11
Kansas City, Mo.	††13.9	2	15.9	17.9	8.3
St. Joseph, Mo.	**16	2	18	20	10.9
Fargo, N. D.	18.9	1	19.9	21.9	14.6
Grand Forks, N. D.	19.2	1	20.2	22.2	14.9
Minot, N. D.	18.9	1	19.9	21.9	14.6
Pierre, S. D.	18	3	21	*	13.1
Huron, S. D.	14	3	17	19	13.1
Wichita, Kans.	8.8	2	10.8	12.8	10.8
Bartlesville, Okla.	13.9	3	16.9	18.9	9.9

†Dumps of 100 or more gallons at 15c per gallon.
*S. O. Indiana does not operate station.
**Includes city tax of ½c.
††Includes city tax of 1c.

S. O. NEBRASKA

Crawford, Neb.	17	2	19	*	12.25
Omaha, Neb.	10	2	12	14	11.5
McCook	17.75	2	19.75	21.75	13
Norfolk	16.75	2	18.75	20.75	12
North Platte	17.75	2	19.75	21.75	12.75
Scotts Bluff	17.25	2	19.25	21.25	12.25

*Standard has no service station here.

CONTINENTAL OIL

Denver, Colo.	17	2	19	21	14.5
Pueblo, Colo.	17	2	19	21	14.5
Casper, Wyo.	17	2½	19.5	21.5	13
Cheyenne, Wyo.	18.5	2½	21	23	14.5
Butte, Mont.	19	2	21	21	16
Helena, Mont.	21	2	23	25	17
Salt Lake City, Utah.	19.5	3½	23	25	18
Boise, Ida.	21	3	24	26	20
Albuquerque, N. M.	20.5	3	26.5	26.5	16.5

S. O. CALIFORNIA

Phoenix, Ariz.	20	3	23	26	21.5
Los Angeles, Cal.	13.5	2	15.5	18.5	15.5
Fresno, Cal.	15.5	2	17.5	20.5	17.5
San Francisco, Cal.	15	2	17	20	15.5
Reno, Nev.	18.5	4	22.5	25.5	19
Portland, Ore.	15	3	18	21	16.5
Seattle, Wash.	15	2	17	20	16.5
Spokane, Wash.	19	2	21	24	20.5
Tacoma, Wash.	15	2	17	20	16.5

S. O. LOUISIANA

Little Rock, Ark.	13	4	17	20	10
Alexandria, La.	13.5	2	15.5	18.5	11
Baton Rouge, La.	12.5	2	14.5	17.5	9.5
Lake Charles, La.	14	2	16	19	11
New Orleans, La.	*14	2	16	19	10
Shreveport, La.	12.5	2	14.5	17.5	10
Lafayette, La.	13.5	2	15.5	18.5	10.5
Bristol, Tenn.	15.5	3	18.5	18.5	12.5
Chattanooga, Tenn.	14	3	17	20	12.5
Knoxville, Tenn.	15	3	18	21	13
Nashville, Tenn.	14	3	17	17	12.5
Memphis, Tenn.	13.5	3	16.5	16.5	12

*Includes 1c city tax on gasoline and kerosene.
†To be revised

S. O. OHIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W
All Ohio points	17	2	19	21	13

MAGNOLIA PETROLEUM

Muskogee, Okla.	16	3	19	22	12
Oklahoma City	15.6	3	18.6	21.6	12
Tulsa, Okla.	16	3	19	22	12
Fort Smith, Ark.	14	4	18	21	12
Little Rock, Ark.	13	4	17	20	10
Texarkana, Ark.*	15	4	19	23	12
Dallas, Tex	16	1	17	19	12
El Paso, Tex.	17	1	18	19	13
Fort Worth, Tex.	15	1	16	18	10
Houston, Tex.	16	1	17	19	12
San Antonio, Tex.	16	1	17	19	12

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city the 4c state tax applies.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline)

	Oleum Spirits	V.M.&P. Naphtha	Cleaners Naphtha
Chicago	18	20	21
Detroit	20.2	21.7	21.7
Kansas City	18.2	20.2	23.2
Milwaukee	18.2	22.7*	22.7*
Minneapolis	19.5	24*	24*
St. Louis	17.4	19.9	21.2
New York		19	.....

*Including state tax.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

ONTARIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Toronto	23.5	3	26.5	30	20
Ottawa	24.5	3	27.5	31	21
Cochrane	28.5	3	31.5	39	24.5
Ft. William	27.5	3	30.5	34	22.5

MANITOBA

Winnipeg	27.5	3	30.5	34	22.5

SASKATCHEWAN

Regina	30.5	0	30.5	34	25.5

ALBERTA

Edmonton	30.5	2	32.5	36	27.5
Calgary	29.5	2	31.5	35	25.5

BRITISH COLUMBIA

Vancouver	21	3	24	28	23

QUEBEC

Montreal	23.5	3	26.5	30	20
Quebec City	25.5	3	28.5	32	22
Three Rivers	25.5	3	28.5	32	22

NEW BRUNSWICK

St. John	26.5	0	26.5	30	25
Moncton	26.5	0	26.5	30	25

NOVA SCOTIA

Halifax	26.5	0	26.5	31	25
Sydney	28.5	0	28.5	32	25

PRINCE EDWARD ISLAND

Charlottetown	26.5	2	28.5	33	28

Note: In districts surrounding these points 1c additional is added to city price.

Complete Export Markets

New York Gulf Coast California

Gasoline Soft in New York Export Market, Gulf Stronger

By Special Correspondent
NEW YORK, Sept. 28

ALTHOUGH virtually all the other major gasoline markets for gasoline ruled stronger last week, New York continued soft, and further business in this locality transpired in U. S. Motor at 10¼ cents a gallon. At the Gulf 10¼ to 10½ cents for this grade was asked.

Local buyers are reluctant to stock up, regardless of the improved conditions in the Mid-Continent and Gulf districts, feeling that the slash in California crude oil prices will ultimately bring about lower gasoline prices there, which would probably result in lower prices in the New York market.

During the past week gasoline has been selling to consumers at service stations at as low as 15 cents a gallon, while the established tank wagon price is 17 cents. Export demand is better up here and a trifle improved in the Gulf.

Gasoline

One of the leading refiners sold a cargo of 45,000 barrels of Motor at 10¼ cents; 64 gravity at 13¼ cents and prime and water white kerosene at 5¼ and 6¼ cents for October shipment from Philadelphia to France, while another refiner reports bidding on a similar cargo also for October shipment to France. This company offered U. S. Motor at 10¼; 64 gravity at 13¼ and prime and water white at 5½ and 6½ cents a gallon, but was told that lower prices had been accepted.

Another pending inquiry in the local market was for 56,000 barrels of Motor, 64 gravity and prime and water white kerosene, but this failed to materialize. In tank cars delivered to the domestic trade U. S. Motor was quoted at 12½ cents a gallon, or 11½ cents refinery, but the belief prevails that this price could have been substantially shaded on a firm bid for a good sized quantity.

Demand for cased gasoline has been lagging, and the majority of shipments were against old business. An inquiry was received from Japan for 15,000 cases of 64 and U. S. Motor but this did not materialize. A Near eastern buyer was in the market for 20,000 cases of U. S. Motor but had not placed the order up to Sept. 26.

Gasoline was firmer in the Gulf district as the week closed. At the start U. S. Motor was generally quoted at 10¼ cents, but on Saturday most refiners were asking 10⅜ to 10½ cents, although 10¼ cents could have been done on a bid. One of the leading independents sold a mixed cargo of 64 gravity and prime and water white kerosene for October shipment to France at 13¼; 5½ and 6½ cents a gallon respectively. This factor expects to close a similar cargo early this week. A leading refiner is reported to have sold a mixed cargo of 50,000 barrels, of prime white, water white, U. S. Motor and 64 gravity at 5½, 6½, 10½ and 13¼ cents, but details are lacking. This was rumored to have been purchased by a United Kingdom buyer.

Cased gasoline was a little less active. U. S. Motor was quoted at $2.25 a case, while 64 gravity was held at $2.55 to $2.65. An Australiasian buyer is reported to be in the market for 40,000 cases, and one of the big independents expects to close this business, calling for delivery over the next two months. South American buyers have been purchasing little or nothing of late.

Kerosene

Kerosene is appreciably firmer at New York, and most of the big refiners are demanding 6¼ cents a gallon at the refinery, but 6 cents can still be done in one direction. The improved export demand has bettered sentiment considerably. European buyers are anxious to cover their fall and winter requirements as soon as possible, feeling that prices are bound to go higher shortly. Stocks up here are fair, but reports from other points indicate that kerosene is by no means over-plentiful. No straight bulk sales of kerosene were disclosed over the week but there is a heavy contract and consignment movement going on which, in addition to the fresh buying, has tended to strengthen the market.

Local jobbers are more inclined to anticipate, and water white in tank cars delivered to the trade is held at 7½ to 7¾ cents a gallon. The tank wagon market is steady and unchanged at 13 cents a gallon.

At the close of the week prime white kerosene was held at 5½ cents at New Orleans, while water white was quoted at 6½ cents although it is known that business could have been done at a quarter cent below these prices. The improved export demand, waning stocks, and firmer prices in the principal refinery markets have tended to restrict offerings and better sentiment.

Cased kerosene demand is still better. A Chinese buyer is credited with the purchase of 25,000 cases of prime and water white for nearby shipment. Cased prime was quoted at $1.65 and water at $1.75 representing an advance of 5 cents a case over the preceding period. Scandinavian buyers are expecting to operate along more extensive lines shortly, as reports from that direction indicate stocks of illuminating and burning oils in general are low.

Lubricating Oils

Lubricating oils were featured by a substantial advance in Pennsylvania cylinder stocks. Just what caused this upturn is uncertain. Some lay it to heavy export buying, others to restricted offerings based on anticipation of a heavy foreign buying movement. No bulk sales were located, although there is a good consignment movement going on.

For Pennsylvania 600 steam refined in barrels, New York, the asking price was 24½ to 25 cents a gallon, with a possibility of picking up a little here and there at 23½ cents. Pennsylvania unfiltered 650 steam refined in barrels, New York, advanced 2 cents a gallon, and is now held at 31 cents. One of the smaller Independents sold 500 barrels of mixed Pennsylvania cylinder stocks on a basis of 24 cents for 600 s. r. New York, for nearby shipment to France.

At the Gulf, prices for cold test oils were easier, although the big refiners are reticent to announce reductions in their established prices. One factor sold a cargo of 14,000 barrels of cylinder stocks and red oils to a French buyer, but details were withheld. There was an inquiry in the market for a cargo of 25,000 barrels of assorted lubricants for October shipment to the continent, but this failed to materialize.

Wax Market

The waxes were firmer at New York. For white crude scale, 122-124 A.M.P. the asking price was 5⅝ cents, but, in order to secure a sizable quantity, a buyer would have been forced to pay 5¾

cents. There is still a little short covering going on. Export business is lighter, and the bulk of the demand appears to be for domestic consumption. Fully refined 120-122 A.M.P. is well held at 6 cents a pound, but demand for this grade was a shade less active.

At New Orleans and other Gulf points prices held steady. There was a better demand from South America and Spain, but sellers were reticent to divulge details. White crude scale is offered a little less freely than last week. Fully refined grades are not very active but firm, reflecting the strength in other markets.

Fuel Oil

Bunker oil shows a slightly firmer tendency at New York. Grade C is unchanged at $1.65 a barrel refinery, but consumption is undoubtedly gaining as a result of the coal strike and all indications point toward firmer prices. No export buying worth mentioning developed. Diesel oil held up fairly well at $2.10 a barrel, refinery.

At the Gulf, Grade C was held at $1.40 a barrel, f.o.b., while at Tampico the price was $1.45, including taxes. Heavy Panuco crude oil was scarce, but firm at $1.20 a barrel, taxes to be added. No export business was reported.

Gas oil is firmer. At New York refineries there is nothing to be had below 5¼ cents for the 28-34 Be. gravity grade, while 36-40 is stronger at 5½ cents a gallon, refinery. Strength in other fuel oil is held mainly responsible for the improvement. There has not been any export buying of consequence, activity being mainly against contracts.

At the Gulf 26-28 Be. gravity transparent was firm at 4¾ cents a gallon, with a possibility of doing 4⅝ cents on a firm bid. Offerings were less plentiful than during the preceding period. European demand is improving, although no bulk sales were heard of. An inquiry was received from a northern European country, probably Germany, for 28,000 barrels of 26-28, but this is still pending. For 32 plus dark 4½ cents a gallon was quoted.

The petrolatums are a shade easier. Demand appears to be fairly well satisfied for the present, and prices were without material change.

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angeles)

	Sept. 26	Sept. 19
Gasoline, U. S. Motor—54°—56°	8½- 9½	8½- 9½
Gasoline—U. S. Motor blends and special cuts	9½-10½	9½-10½
Gas Oil, 24°—30°B per bbl.	$1.45	$1.45
Diesel Oil, 27°B—plus per bbl.	$1.45	$1.45
Bunker Oil, 14°—18°B per bbl.	$1.20	$1.20
Fuel Oil, 14°—18°B per bbl.	$1.20	$1.20
Kerosene, W. W. 40°—42° B per gal., 125-150 flash test	05 -06¼	05 -06¼
Cased Goods		
Gasoline, U. S. Motor	$2.50	$2.50
Kerosene, W. W. 40°—42° B per case, flash test 125-150	$1.55-1.65	$1.55-1.65

New York Export Market

Prices below are an index to the export markets as of the dates given. In many cases they are actual sales prices. So many factors enter into the price in export transactions that an actual market price governing the bulk of transactions cannot be given.

		Sept. 28	Sept. 21
GASOLINE			
*U. S. Motor, Bulk, Ref.		11⅛	-11⅛
KEROSENE			
45-150 W. W. Bulk Ref.		-06-06¼	-06¼
GAS OIL			
36-40, Bulk Refinery		-05⅜	-05⅜
28-34, Bulk Ref.		-05¼	-05¼
BUNKER OIL			
Grade C, Ref.	Bulk	1.65	-1.65
Diesel Oil Ref.	Bulk	2.10	-2.10
*nom.			
LUBRICATING OILS			
The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.			
CYLINDER OILS BBLS.			
1 inch Immersion Test			
Penna. Filtered D 600		-32	-32
Penna. Filtered E 600		-29	-29
Unfiltered 600 s. r.		-24½-25	-24
Unfiltered 650 s. r.		-31	-28½
600 flash s. r.		-33	-21
Western 600 s. r.		-14	-14
Bloomless 30-31 grav.		-17	-17
RED PARAFFIN (bbls.)			
300 vis. at 100°F.	No. 5.	-21½	-22½
250 vis. at 100° F.	No. 5.	-20½	-21
High Viscosity Paraffin	No. 5.	-26	-27
.885 s.g.pale 100 vis. at 100°F.		-14	-15
SPINDLE (bbls.)			
200 vis. at 100° F. Pale	No. 3	-24	-27
180 Pale	No. 3	-23	-26
150 Pale	No. 3	-22	-25
BLACK OIL (bbls.)			
25-30 cold test	14 -15	14	-15
15 cold test	15 -15½	15	-15½

	Sept. 28	Sept. 21
MEDICINAL OILS (Cooperage Basis) (Penna. Stocks)		
Domestic.875-.885s.g.drums	1.00-1.08	1.00-1.08
Domestic.865-.870s.g.drums	.75- .80	.75- .80
Russian.885-.890s.g.325-330 vis. drums	1.25-1.20	1.25-1.25
WAXES (Penna. Stocks) (F. A. S. Carload Lots)		
WHITE CRUDE SCALE		
122-124 A. m. p.	-05¾	-05¾
124-126 A. m.p.	-05¾	-05¾
MATCH		
105-108 A. m. p.	-06	-06
111-115 A. m. p.	nominal	nominal
FULLY REFINED		
120-122 A. m. p.	-06¾	-06¾
123-125 A. m. p.	-06¾	-06¾
125-127 A. m. p.	06¾	-06¾
128 130 A. m. p.	-0 ¾	-06¾
130-132 A. m. p.	-06¾	-06¾
133-135 A. m. p.	-06¾	-06¾
135-137 A. m. p.	-07¼	-07¼
SEMI REFINED		
122-124 A. m. p.	-05¾	-05¾
YELLOW CRUDE SCALE		
124-126 A. m. p.	-05¾	-05¾
PETROLATUMS (Penna. Stocks)		
Dark Green	Nom.	Nom
Veterinary	03	03
Light Amber	03¾	03¾
Dark Amber	03	03
Cream	06	06
Lily White	08	08
Snow White	10	10

N. Y. Export Quotations

Furnished by big exporting oil companies. No actual sales. Record for statistical purposes only.

Illuminating Oils
Standard Oil of New Jersey

	Sept. 28	Sept. 21
Bulk, gal., Bayonne	Nom.	Nom
Barrels, gal., Bayonne, cargo	Nom.	Nom.
Cases, gal., Bayonne	16.40	16.40

Prices for water white oil (150 test) are 1 cent higher than those for standard white.

Gasoline-Naphtha
(Cents per Gallon)

U. S. Motor, dead bulk	Nom.	Nom.
U. S. Motor, cases	27.65	27.65
Export Naphtha bulk	Nom.	Nom.
*62-63 deg. bulk	Nom.	Nom.
66-68 deg. bulk	Nom.	Nom.

*Grade changed from 64-66 to 62-63 Jan. 9.

Tide Water Oil Company
(f. o. b. Bayonne)

58-59 deg. bulk	Nom.	Nom.
58-59 deg. cases	27.65	27.65
Export grade, U. S. Motor Specifications bulk	Nom.	Nom.
68-72 deg. bulk	Nom.	Nom.

	Bulk Barrels	Cases
Standard white 110	Nom. Nom	16.40
Water white 150	Nom Nom.	17.40

The Texas Company

Gasoline, cases	27.65

Kerosene	Bulk Barrels	Cases
Standard White	Nom. Nom.	16.40
Prime White	Nom. Nom.	16.80
Water White	Nom. Nom.	17.40

Gulf Export Market

(Actual Sales Prices)

Gasoline

	Sept. 28	Sept. 21
U. S. Motor, Cargo	10¼-.10¾	10¾-.10¼
60-62 gr. 400 e. p. Bulk	-.13	-.12¾
64-66, Bulk 3.85 e. p.	13¾-.13¾	13¾-.13¾
U. S. Motor, Cases (cargo lots)	2.25	2.55
64-66, Cases (cargo lots)	2.55-2.65	2.70

KEROSENE

Water White, bulk	06¼-06½	-.06¼
Prime White, bulk	05¼-05½	-.05¼
Water White, cases (cargo lots)	1.75	1.70
Prime White, cases (cargo lots)	1.65	1.60

GAS AND BUNKER OIL

26-28, gravity, bulk. Transp.	04¾	-04¾
32 plus, bulk, Dark	04½	-04½
Grade C, Bunker oil	1.40	-1.40

MEXICAN CRUDE AND BUNKER OILS

Heavy, f.o.b. Tampico, Taxes to be added	1.20	1.20
Mexican Grade C, Bunker oil F. O. B. Tampico Taxes paid	1.40	1.45
Mexican C, Bunker oil New Orleans	1.40	1.40

Lubricating Oils
SOUTH TEXAS
(Viscosity at 100°F; cold test 0)
(Tanker, F. O. B. Houston)

	Sept. 28	Sept. 21
100 Vis. No. 2 Unfiltered Pale	07½	07½
150 Vis. No. 2½ Unfiltered Pale	10	10
200 Vis. No. 3 Unfiltered Pale	11	11
300 Vis. No. 3 Unfiltered Pale	13½	13½
500 Vis. No. 3½ Unfiltered Pale	15½	15½
200 Vis. No. 5½ Red Oil	10	10
300 Vis. No. 5½ Red Oil	12	12
500 Vis. No. 6 Red Oil	14	14
800 Vis. No. 6 Red Oil	20	20

American Oil Men Seek Accurate Billing

CHICAGO, Sept. 26.—H. G. James, secretary and manager of the American Oil Men's Association, 624 S. Michigan Ave., Chicago, has started a vigorous campaign with the major oil carrying railroads to persuade them to be more careful of their methods of billing carload goods. A superficial investigation through correspondence with his members had shown that too great a percentage of cars are delivered wrongly billed.

For the jobber this practice carries unusual hazards, Mr. James points out. Although comparatively few tank cars containing gasoline are billed wrong, sometimes kerosene, distillate, or fuel oil is billed as gasoline when delivered. The worst error to which such a clerical mistake might lead, is to have a carload of heavy goods pumped from the car into gasoline storage. Such a blunder by a bulk station employe always lets the oil company in for a financial loss, which is only partly repaid even if the railroad company makes adjustment promptly.

Misbilling of oil most often happens in transit, that is, at junction points in the preparation of transfer bills from one line to another. Mr. James' investigation through correspondence with the railroad officials developed enough information that he is willing to hang most of the blame on the carriers. Cars usually leave the refineries correctly billed. Refiners and their employes know the importance of discriminating between different goods shipped.

The character of goods in a tank car has an effect on the rate of freight charged. It influences the way the car is treated in transit by trainmen and switchmen. It determines what tank into which the jobber unloads a car, and when a mistake is made it precipitates a loss to somebody, never less than the cost of the goods in the car.

GREEN BAY, WIS.—Standard Oil Co. of Indiana has completed two service stations here to take care of increased business.

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made rom Domestic (including California) and Mexican Crudes.

	Sept. 28	Sept. 21
U. S. Motor Gasoline, Tank Cars Delivered	-12¼	-12¼
U. S. Motor Gasoline, Tank Cars Bayonne	-11¼	-11¼
Kerosene, 45-150 W. W. Tank, Cars Del'd	07-07¼	-.07
*Grade C Bunker, f.o.b. N.Y.	1.65	1.65
Diesel Oil f.o.b. Refinery	¢.10	¢.10
Gas Oil, 36-40, Bulk, Refinery	-05¼	-05¼
Gas Oil, 28-34 Bulk, Refinery	-05	-05¼
Furnace Oil, 38-42 Ref.	-05	-05¼

*nominal

Crude Oil Prices All Fields

ALL PRICES EFFECTIVE, *Sept. 28*

EASTERN FIELDS
Posted by Joseph Seep Purchasing Agency

Penna. Grade Oil in New York Transit Lines (Allegany, N. Y. District)	$3.15
Bradford District Oil in National Transit Lines (Bradford District)	3.15
Penna. Grade Oil in National Transit Lines (Other Pennsylvania)	3.05
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania)	3.05
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)	3.00
Penna. Grade Oil in Buckeye Pipe Lines (Ohio)	2.80
Gaines, Tioga Co. (Pa.)	$2.70
Cabell Grade in Eureka Pipe Lines (West Virginia)	2.10
Corning Grade in Buckeye Pipe Lines (Ohio)	1.80
*Somerset Medium in Cumberland Pipe Lines (Kentucky)	2.20
*Somerset Light in Cumberland Pipe Lines (Kentucky)	2.35
Ragland Grade in Cumberland Pipe Lines (Kentucky)	1.10

*Somerset oil run prior to Oct. 1, 1923, takes price of 6 cents lower than above quotations.

CENTRAL STATES FIELDS
Posted by Ohio Oil Co.

Wooster	$2.00	Indiana	$1.88	Plymouth	$1.40
Lima	1.98	Princeton	1.87	*Canadian Petrolia	2.38
		Illinois	1.87	*Posted by Imperial Oil, Ltd.	

OKLAHOMA, KANSAS And NORTH TEXAS FIELDS
(Prices of Prairie Oil & Gas Co.)
(Prairie's prices apply in Oklahoma, Kansas, North and Central Texas.)

28-28.9	$1.15	34-34.9	$1.68	40-40.9	$2.11
29-29.9	1.23	35-35.9	1.71	41-41.9	2.19
30-30.9	1.31	36-36.9	1.79	42-42.9	2.27
31-31.9	1.39	37-37.9	1.87	43-43.9	2.35
32-32.9	1.47	38-38.9	1.95	44 and above	2.43
33-33.9	1.55	39-39.9	2.03		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie and Moran crudes, all in Texas.)

28-28.9	$1.35	34-34.9	$1.71	40-40.9	$2.07
29-29.9	1.41	35-35.9	1.77	41-41.9	2.13
30-30.9	1.47	36-36.9	1.83	42-42.9	2.19
31-31.9	1.53	37-37.9	1.89	43-43.9	2.25
32-32.9	1.59	38-38.9	1.95	44 and over	2.31
33-33.9	1.65	39-39.9	2.01		

Above prices effective Aug. 15. The Texas Co. posted same schedule Aug. 21, applying it also to Oklahoma grades as well as North, North Central and Central Texas crudes.

Magnolia Petroleum Co. Prices

*In Oklahomas and Kansas		**In North Texas	
Below 28	$1.00	Below 28	$1.00
28-30.9	1.31	28-30.9	1.35

*Remainder of Magnolia's gravity schedule in Oklahoma and Kansas begins with 31-31.9 and follows Prairie schedule.

**Remainder of Magnolia's gravity schedule in North Texas begins with 31-31.9 and follows Humble ch edule.

NORTH LOUISIANA—ARKANSAS FIELDS
***Prices of the Standard Oil Co. of Louisiana**

Caddo, below 32	$1.65	Haynesville, below 33	$1.55	Smackover, 24-24.9	$1.15
do 32-34.9	1.75	do 33 and above	1.65	do 25-25.9	1.20
do 35-37.9	1.85	El Dorado, below 33	1.55	do 26-26.9	1.25
do 38 and above	1.95	do 33 and above	1.65	do 27 and above	1.30
Homer, below 31	1.40	Bull Bayou, 32-34.9	1.45	De Soto	1.80
do 31-32.9	1.55	do 35-37.9	1.60	Crichton	1.60
do 33-34.9	1.65	do 38 and above	1.75	Bellevue	1.65
do 35 and above	1.75	Smackover, below 24	.85	Cotton Valley	1.10

*Same prices maintained by The Texas Co. and Gulf Production Co. The Texas Co. buys in Caddo, Bull Bayou, De Soto, Crichton and Smackover fields.

STEPHENS, ARKANSAS
Posted by Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.

26 and above	$1.40	Below 26	$1.20

SMACKOVER, ARKANSAS
Prices of Louisiana Oil Refining Corp.

Below 24	$0.85	25-25.9	$1.25	27 and above	1.35
24-24.9	1.15	26-26.9	1.30		

SMACKOVER, ARKANSAS
Prices of Atlantic Oil Producing Co. and Shreveport-Eldorado Pipe Line Co.

Below 24	$0.90	25-25.9	$1.25	27 and above	1.35
24-24.9	1.15	26-26.9	1.30		

GULF COASTAL FIELDS
(Posted by Humble Oil & Refining Co., The Texas Co., Gulf Production Co., Sun Oil Co. and Sinclair Crude Oil Purchasing Co.)

Grades A	$1.50	Grades B	$1.25

Goose Creek, Hull, Orange and Pierce Junction are the only Gulf Coastal fields that have A and B grade classifications. All other fields are classified as A grades only.

ROCKY MOUNTAIN FIELDS
Prices of Ohio Oil Co. and Midwest Refining Co.

†Salt Creek, 29-29.9	$1.23	36-36.9	$1.79	Rock Creek	$1.75
30-30.9	1.31	37 and above	1.87	†Osage	1.90
31-31.9	1.39	Elk Basin	1.90	†Cat Creek, Mont.	1.90
32-32.9	1.47	Grass Creek, light	1.90	Sunburst, Mont.	1.55
33-33.9	1.55	Big Muddy	1.75	†Hogback, N. Mex.	1.95
34-34.9	1.63	Lance Creek	1.90	Artesia, N. Mex.	1.45
35-35.9	1.71				

†Posted by Midwest Refining Co. Midwest also buys Grass Creek light, and Elk Basin. The Texas Co. buys Salt Creek crude.

CALIFORNIA
Prices of Standard Oil Co. of California

Standard Oil Co. of California on Sept. 22 reduced California crude from 10 to 35 cents per barrel, and posted 19 new price classifications in the various fields. Instead of paying the same price for the same gravity of oil in all fields regardless of the value of the oil, as it previously has done, the Standard put into effect a new schedule which provides a different schedule of prices for each field and takes into account the varying values of oils of the same gravity in the different fields.

Oil of 14 gravity is the only grade which is posted at a uniform price of $1 in the lighter oil fields, while in the heavier fields of Newhall, Midway-Sunset-Elk Hills, McKittrick, Lost Hills, Coalinga, Kern River and Wheeler Ridge, it is 90 cents a barrel. Prices on other gravities in the various fields vary, according to value.

The new complete schedule of prices in California can be obtained from the editorial department of National Petroleum News on application.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

	Sept. 28	Sept. 21
Soda Ash light 58% bags cwt.	-$1.38	-$1.38
Silicate of Soda 60 deg. drums.....cwt.	- 1.70	- 1.70
Sal Soda wks.....cwt.	1.10- 1.25	1.10- 1.25
Caustic Soda 70% solid. cwt.	- 3.10	- 3.10
Chloride of Lime.....cwt. works.....	- 1.90	- 1.90
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point.....per ton	-10.00	-10.00

Compounders' Supplies (Open Market)

Vegetable Oils—

Linseed carloads spot....gal.	- 1.01	- 1.04
September.....	- 1.01	- 1.04
Tanks, spot.....	- .95	- .98
Less carload spot.....gal.	- 1.04	- 1.06
Less than 5 bbls. spot.....	- 1.06	- 1.08
Boiled tank spot.....	- .96	- .98
Boiled, carloads spot....gal.	- 1.04	- 1.06
*Soya Bean spot, Bbls....lb.	- .13¼	-.13¼

Animal Oils—

English Degras.....lb.	05½	-.05¼
Domestic Degras, bbls., carloads.....lb.	-.04¾	-.04¾
*Horse.....lb.	-10	-.10

Oleic Acid—

Dist Bbls.....lb.	-.11¾-12	.11½-.12
Saponified, Bbls.....lb.	-.11¾-12	.11½-.12

Castor Oil—

No. 3 Carlots, Bbls.....	-.15½	-.15½
No. 1 Carlots, Bbls.....	-.16	-.16

Lard Oils—

Prime		
Winter Strained. 1 to 1½ffa.40‡45c.t.lb.	.20¼	.20
Extra		
Winter Strained. 2 to 4½ffa.40/45c.t.lb.	.17¼	.19
Extra..... 4 to 5 ffa.40/45c.t.lb.	.14¾	.15
Extra No. 1 7 to 10 ffa.40/50c.t.lb.	.13½	.13
No. 1.....15 to 18 ffa.40/45c.t.lb.	.13¼	.12¾
No. 2.....22 to 23 ffa.40/45c.t.lb.	.13	.12½
Prime Edible Tallow under 1¾ffa. 40/45c.t.N.Y.....lb.	-.11¾	-.11¼
Tallow acidless.....lb.	-.13¼	-.13¼
Lard Stearine.....lb.	-.20¾	-.20¾
Oleo Stearine.....lb.	-.13¼	-.13¼

Neatsfoot Oil—

Pure.....bbls.-lb.	.14¾	.15
Extra.....do lb.	.13½	.13¼
No. 1.....do lb.	.13¼	.13
Cold pressed.....lb.	.18	.17¾

Fish Oils—

Menhaden Oil		
Light pressed.....gal.	-.66-.68	66-.68
White.....gal.	-.71-.73	71-.73
Yellow bleached.....gal.	-.72-.75	72-.75
*Herring tank cars coast.....gal.	-.45	-.45
Whale, extra winter bleached.....gal.	-.79	-.79
Seal.....gal.		Nominal

Naval Stores—

Turpentine, N. Y.....gal.	1.15	1.20
Turpentine†.....gal.	1.05	1.13
Rosin, B. N. Y.....Bbl.	14.90	15.25
Rosin, F. N. Y.....Bbl.	15.05	15.40
Rosin, B†.....Bbl.	12.43	nom.
Rosin, F†.....Bbl.	12.43	nom.
Rosin Oil 1st run.....gal.	.78	.70
Rosin Oil 2nd run.....gal.	.82	.75

Pine Tar—

Kiln Burnt.....Bbl.	14.50	14.50
Retort.....Bbl.	15.00	15.00

†Savannah, Ga. market.
*Nominal.

Naval Stores Strong Acid is Firm

NEW YORK, Sept. 28.—Following is a review of the markets for oils and supplies used in compounding and refining:

Bleaching Powder.—Contract prices not as yet announced. Business at present still mainly against old orders. Stocks fair. Better inquiry for 1926 delivery.

Caustic Soda.—Contracts for 1926 closed, but prices not yet disclosed. Stocks in firm hands. Export inquiry more active. Domestic consumption gaining.

Sal Soda.—Demand slightly better. More interest in future deliveries. Prices trifle firmer.

Naval Stores. — Strong. Turpentine offers sparing. Buyers clamoring for supplies. Receipts at Southern points disappointing. Export buyers anxious to anticipate. Spot stocks low. Rosins tending higher. Domestic and foreign demand more spirited. Rosin oils firmer. Tar and pitch moving freely.

Castor Oil.—Slightly easier. Demand less active. Offerings more numerous. Number three held at 15½ cents, barrels, New York.

Linseed Oil.—Steady. Price fluctuations narrow, reflecting trend in seed. Buying lighter as paint season nears end. Inquiry from linoleum makers better. Petroleum refiners reluctant buyers. Boiled and double boiled oils quiet. Soya bean oil dull.

Animal Oils. — Unsettled. Low grade lard oils higher. More expensive grades slightly lower. Same in neatsfoot oil. Demand disappointing. Oleic acid quiet. Domestic degras steady at 4⅝ cents, pound, spot. Oleo stearine dull at 13¼ cents, tanks.

Soda Ash. — Quiet. New contract prices not out yet. Business chiefly against old contracts. Prices steady.

Sulfuric Acid.—Firm. Raw material strong. Demand for acid slightly more active. No price changes.

Benzol Market Firm

NEW YORK, Sept. 28.—Although production of benzol is reported to be steadily gaining, reflecting the increased activity in the steel industry, there has not been any improvement in the motor benzol supply situation during the past week. Leading markets still quote spot in tank cars at ovens nominal at 25 cents a gallon, and declare that they still find difficulty in taking care of new business.

Export demand is improving, but this is not receiving much attention in view of the very limited offerings. Motor fuel mixture manufacturers are taking large quantities on contracts, and still clamoring for supplies regardless of the proximity of colder weather. Pure and 90 per cent benzol remain quiet and unchanged.

Pennsylvania Markets Show Strength

The general tendency in the Pennsylvania market for the past week has been bullish. The gasoline market has held firmly but looks to be easing off slightly. Kerosene of the 45 water white grade is reported to be in demand and is quoted around 6⅝ to 6¾. Neutrals and cylinder stocks advanced on some grades during the past week due to a scarcity. In some instances refiners were compelled to buy requirements from other refineries to fulfill their contracts.

Total Stocks Continued To Gain in July

NEW YORK, Sept. 28.—Total stocks of both crude oil and refined products carried by the oil industry increased about 2,000,000 barrels during July, according to the complete final figures for the month issued by the American Petroleum Institute, and stand now at 548,329,604 barrels. At the end of 1924 total inventories were 504,646,688 barrels. There has not been a month this year in which the total figures for stocks has not been added to. The figure for each month is in barrels:

Jan. 31	508,522,218
Feb. 28	514,825,469
March 31	527,865,310
April 30	531,698,758
May 31	542,056,964
June 30	546,378,058
July 31	548,329,604

Total additions to stocks for July were brought about through increases in crude at refineries and refined products east of California, and in heavy crude in California. Complete figures for June and July are in barrels:

	June	July
East of California:		
Pipe line, tank farm	275,960,000	273,206,000
Crude at refineries	33,822,000	34,307,000
Refined products at refineries	99,369,752	100,872,152
Pacific Coast District:		
Refinable crude 20 and below	45,226,000	44,269,000
Heavy crude below 20, including all grades fuel oil	64,977,000	69,159,000
Refined products	26,073,306	25,600,452
Mexican crude not at refineries	890,000	916,000
Total stock of Crude and refined	546,378,058	548,329,604

OIL STOCKS AND FINANCES

Pan-American Western Takes Over Doheny's California Property

NEW YORK, Sept. 26

THE transaction has been completed by which the newly formed Doheny company, the Pan American Western Petroleum Co. acquired full ownership of the stock of the Pan-American Petroleum Co. which was the California operating subsidiary of the Pan-American Petroleum & Transport Co.

The consideration for the purchase of the Pan-American Petroleum Co. was $23,293,125 of whcih $11,250,000 was represented by 15-year 6 per cent gold notes and the remainder was cash, derived from the sale of 500,000 shares of capital stock. Of that block of stock 100,000 shares was A, voting stock sold to the Petroleum Securities Co., owned by the Doheny family, at $23.50 a share and 400,000 shares of B non-voting but otherwise full participating stock sold to Pan-American Petroleum & Transport Co. shareholders at $23.50 a share.

Plan Aggressive Campaign

Pan American Western, through its operating subsidiary, Pan American Petroleum Co. of California, will carry on a progressive policy in connection with the production, refining and marketing of gasoline, lubricating oils and fuel oil, it was announced. The company is handling approximately 65,000 barrels of crude oil daily. By Oct. 1 its new concrete reservoir, with a capacity for storing 3,000,000 barrels of oil, the largest in the world, will be completed providing a total storage capacity at Los Angeles for 12,000,000 barrels, of which about one-fourth will be gasoline. As soon as this reservoir is completed work will be commenced on a 1,500,000-barrel reservoir.

Officers of Pan-American Western Petroleum Co., to which E. L. Doheny is now devoting his entire time, are: E. L. Doheny, president; E. L. Doheny, Jr., vice president; R. M. Sands, secretary; Fred Ritter, treasurer. Directors are E. L. Doheny, E. L. Doheny, Jr., J. C. Anderson, C. Warren Smith and Fred Ritter.

A dividend is expected on Pan-American Western Petroleum Co. stock. There is considerable interest as to how the Doheny dividend policy will be applied to the new Western company stockholders. While E. L. Doheny was in control of Mexican Petroleum Co. and Pan American Petroleum & Transport Co. that policy was known as a liberal one.

Mr. Doheny also stated plans were under way for perfecting an employes' stock participation plan, details of which would be announced later.

The Pan-American Petroleum & Transport Co., now controlled by a syndicate headed by the Standard Oil Co. of Indiana, in the six months ended June 30 netted $16,539,000 after interest, taxes, depreciation and depletion and not taking into account the earnings of the California subsidiary before the control of the eastern and foreign properties passed into the hands of the Standard of Indiana syndicate.

These earnings are equivalent to $6.02 a share on the combined A and B capital stock and represents the best half year the company has ever had. They are in excess of the net earnings for the whole of 1924.

Fred H. Wickett has been elected president of the Pan-American Petroleum & Transport to fill the vacancy caused by the resignation of Herbert G. Wylie. Mr. Wickett also is chairman of the board. Harold Walker, Frederic Ewing and R. G. Stewart have been elected vice-presidents.

New Mex. Pet. Officers

Mr. Wickett also was elected president of Mexican Petroleum Co. of Delaware, a post vacated by Mr. Wylie. These vice-presidents for Mexican Petroleum also were elected: Mr. Walker, Mr. Ewing, R. G. Stewart, P. H. Harwood, and Joseph J. Cotter.

A plan has been agreed upon between the Pan-American Petroleum & Transport Co. and large stockholders of Lago Petroleum Corp., providing for the organization of a new corporation, to be called Lago Oil & Transport Corp., which will acquire control of Lago Petroleum Corp., and will likewise acquire the controlling interest of Lago Oil & Transport Co., Ltd., which is now owned by the Pan-American Petroleum & Transport Co.

It is expected that within the next 30 days final details of this plan will be completed.

Lago Petroleum Corp., in which Pan-American Petroleum & Transport Co. has a large interest, produced 401,500 barrels of oil in August from the La Rosa field in Venezuela and shipped 390,000 barrels.

Oil Dividends

	Amount	Payable	Stock of Record
Associated Oil q.	50c	Oct. 26	Sept. 30
Borne-Scrymser s.a.	$4	Oct. 15	Sept. 26
do extra	$4	Oct. 15	Sept. 26
Phillips Pet. q.	50c	Oct. 1	Sept. 15
S.O.Kentucky q.	$1	Sept. 30	Sept. 15
Tide Water q.	25c	Sept. 30	Sept. 18
Sterling Oil & Dev. s. a.	10c	Oct. 5	Sept. 25
do extra	10c	Oct. 5	Sept. 25

Cleveland Stock Market

	Par	Sept. 25 Bid	Asked	Last Sale
Canfield Oil Co.	$100	108½	.....	115
do pfd.	100	.....	100	95
Fred G. Clark Co.	10	2½	3	3
National Refin. Co.	25	35	36½	35⅛
do pfd.	100	.....	132	130
Paragon Refin. Co.	25	8	8¾	8½
do pfd.	100	61⅛	61⅜	60

Naphtha Prices Advanced

CHICAGO, Sept. 24.—On Sept. 17, the Standard Oil Co. of Indiana advanced the refinery prices of painters' and cleaners' naphthas 1 cent a gallon. V. M. & P. naphtha is now 14 cents a gallon, oleum spirits 13 cents and cleaners naphtha 15 cents in tank cars f. o. b. Whiting, Ind. On Aug. 25 the tank wagon price of these products was reduced generally 2 cents a gallon, except oleum spirits at Detroit where the cut was 1 cent.

Gulf Coastal Lubes Firm

HOUSTON, Sept. 28.—Gulf Coastal lubricant markets are firm and sound under price schedules now prevailing. When recent softness resulted in price concessions, it reflected stocks of paraffin oils held in storage by interior distributors who use zero cold test lubricants only in the late fall and winter months. Buying against the future is now being done by that class of distributors. Interests selling zero oils in all seasons also are buying.

To Handle Petroleum Coke

WICHITA FALLS, Sept. 26.—Announcement is made of the recent organization of K. M. A. Oil & Coke Co. as a branch of the K. M. A. Fuel Oil Co. with offices in the Staley Building here.

L. M. Lingenfelter, formerly with Petroleum Marketing Co. of Kansas City and W. R. Stinnett, will be in direct charge, and the company will handle crude, refined oils and petroleum coke.

Transactions In Oil Shares on New York Stock Exchange

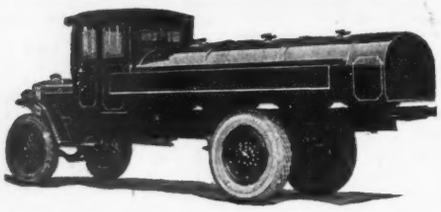
1924 High	1924 Low	1925 High	1925 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Sept. 26 Sales	First	High	Low	Last	Ch'ge
48	25	76	48	(sh)	200,000	N.P.	American Republics	.....	.....	400	55¾	61¼	55¾	61¼	+1⅝
34⅝	27⅝	41⅝	32	$	56,000,000	$25	Associated Oil	50cQ	July 25, 25	4,000	36	36¾	35½	36¼	+ ⅛
140⅜	78½	117½	95⅜		50,000,000	100	Atlantic Refining	.....	June 16, 24	3,800	100½	101¾	99¾	100	—1¾
118	108	117¾	113½		20,000,000	100	do pfd	$1¾Q	Aug. 1, 25	100	116	116	116	116	+ ¾
23⅛	14	30	18¾		18,428,350	25	Barnsdall Corp. A	.....	Apr. 30, 21	8,900	20⅞	21⅛	20⅝	20¾	— ⅛
17½	10	23	16		3,713,275	25	do B	.....	Apr. 30, 21	400	16¾	16⅝	16¼	16⅜	— ⅛
4¾	1	2¾	⅞	(sh)	150,000	N.P.	Caddo Central O. & R	.....	.....	300	¾	¾	⅝	⅝	— ⅛
29¾	19½	32⅛	23⅜	$	30,549,925	$25	California Petroleum	50cQ	Sept. 1, 25	19,100	26⅞	27½	26	27½	+1
63¾	31⅜	62¾	42⅛		19,832,380	100	General Asphalt Co	.....	.....	5,900	54⅜	55⅞	53	55	+1⅝
100	71½	101	86½		7,416,000	100	do pfd	$1¾Q	Sept. 1, 25	400	101½	98	97¼	97¾	+1½
45	38¾	59	42		28,944,650	25	General Petroleum	50cQ	Sept. 15, 25	25,900	45¾	46¾	44¼	45½	— ¾
82½	61	85	59		25,000,000	100	Houston Oil Co	.....	.....	3,300	65¾	68	65	66⅞	+ ⅛
16⅜	5¾	40⅜	13½	(sh)	500,000	N.P.	Independent Oil & Gas	25cQ	Oct. 5, 25	23,300	*24⅜	*25⅞	*23⅝	*24¾	+ ⅜
7⅛	3¾	10¾	5½	$	3,326,870	10	Indian Refining Co	.....	Dec. 15, 20	2,800	9⅛	9⅜	8½	9	— ¾
75	60	95	77		2,296,400	100	do pfd	.....	Dec. 15, 21	200	81	82	81	82	+3
1	¼	1⅝	¼		1,678,760	$10	Kansas & Gulf Corp	.....	.....	100	½	½	½	½	0
.....	.....	23¾	13⅝	(sh)	1,076,538	N.P.	Louisiana Oil Refining	.....	.....	10,900	15⅛	15½	14⅜	15⅜	+ ⅛
27¼	24¾	35½	20⅜	(sh)	330,900	N.P.	Maracaibo Oil	.....	.....	1,100	21	21⅞	20½	21½	0
42	29	47⅜	32¾	(sh)	1,885,305	N.P.	Marland Oil Co	75cQ	Sept. 30, 25	66,000	43⅞	44¾	42½	44¼	+ ⅜
190	190	250	225	$	45,942,800	$100	Mexican Petroleum Co	$3Q	July 20, 25	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....		12,000,000	$100	do pfd	$2Q	July 20, 25	.....	.....	.....	.....	.....	.....
25¾	14¾	22¾	11⅜	(sh)	945,989	N.P.	Mexican Seaboard Oil	.....	Nov. 15, 24	3,900	13	13⅛	12¾	12¾	— ⅜
40¾	22⅜	36	26	(sh)	1,357,800	N.P.	Mid-Continent Petroleum (Cosden)	.....	Aug. 1, 25	18,200	29¾	30	28⅜	29⅜	+ ⅜
95	80	94	83	$	6,718,000	$100	do pfd	$1¾Q	Sept. 1, 25	100	91	91	91	91	+1
6⅞	1	3¼	⅝	$	26,013,700	$10	Middle States Oil Corp	.....	July 1, 23	3,000	1⅝	1⅝	1½	1½	0
58¼	45	65¾	51⅜	(sh)	3,500,000	N.P.	Pacific Oil Co	$1.50	S.A. July 20, 25	28,300	53⅞	54⅜	53	53¾	— ⅜
65	44⅜	83⅞	59⅜	$	48,307,400	$50	Pan American P. & T	$1.50Q	July 20, 25	8,700	63⅛	65	62⅝	64	0
84¾	41¼	84½	60¾		90,475,100	50	do Class B	$1.50Q	July 20, 25	38,200	64	65⅛	62¼	63⅝	0
4¾	1¾	5¾	2¾	(sh)	198,770	N.P.	Panhandle P. & R	.....	.....	300	2¾	2¾	2¾	2¾	0
42½	29	60½	38	$	2,935,200	$100	do pfd	.....	July 2, 23	.....	.....	.....	.....	.....	.....
42½	28¾	47⅝	36¾	(sh)	1,925,152	N.P.	Phillips Petroleum	50cQ	Oct. 1, 25	21,700	38⅜	39⅞	37½	38⅜	+ ⅜
4¾	1⅜	3¾	1⅜	$	29,622,925	$25	Pierce Oil Corp	.....	.....	1,600	1⅜	1¾	1½	1⅝	— ⅛
36	20	40	25½		15,000,000	100	do pfd	.....	Feb. 1, 22	100	28	28	28	28	0
5¾	4⅜	8¼	5	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	4,200	5⅜	5½	5⅛	5⅜	— ⅛
45½	22¾	32⅝	13½	$	11,467,850	50	Producers & Refiners	.....	Sept. 15, 23	2,200	15	15	14	14	—1
47⅜	42	47⅜	27		2,845,350	50	do pfd	.....	May 1, 25	300	30	31	30	30½	+ ½
30¾	20	33¾	25¾		75,959,250	25	Pure Oil Co	37½cQ	Sept. 1, 25	8,000	26⅛	26¾	26	26¼	+ ⅛
105¾	92	108⅝	103		15,000,000	100	do 8% pfd	$2Q	Oct. 1, 25	400	106⅜	107	106⅜	107	+ ⅛
59½	40⅜	57⅜	48¾	(sh)	823,298	13.40	Royal Dutch, N. Y. shares	$3.18⅘	Aug. 12, 24	5,400	50¼	50¾	49	49	— ⅛
42	33	45¾	39½	(sh)	109,875	£2	Shell Transport & T	$1.21	July 25, 25	700	40	40	†39½	39⅞	— ⅛
22½	15¾	28¾	21¾	(sh)	10,000,000	N.P.	Shell Union Oil Corp	35cQ	Sept. 30, 25	20,400	22⅜	22⅝	21⅞	22¼	— ⅛
99¾	91½	105¾	90½	$	20,000,000	$100	do pfd	$1½Q	Aug. 15, 25	990	104⅜	104½	103¾	104	0
24	10⅜	26¾	18¾		7,207,090	10	Simms Petroleum Co	50Q	July 1, 25	11,900	19½	20¼	18¾	19½	— ⅜
27¾	15	24¾	17	(sh)	4,484,305	N.P.	Sinclair Consolidated	.....	May 31, 24	18,800	18⅝	19	18⅜	18¼	— ⅛
90	75	94½	78¾	$	18,190,200	$100	do pfd	$2Q	Aug. 15, 25	.....	.....	.....	.....	.....	.....
29	17⅜	30½	21¾		20,966,590	25	Skelly Oil Co	.....	.....	10,500	25¾	26⅛	25⅛	26⅜	+ ⅜
68⅝	55⅞	67¼	51⅜		236,209,000	25	S. O. California	50cQ	Sept. 15, 25	10,700	53	53⅝	52⅝	53	— ⅛
42¾	33	47⅜	38¾		511,056,025	25	S. O. New Jersey	25cQ	Sept. 15, 25	25,600	39⅝	40⅝	39½	39⅞	+ ¼
119⅜	115¾	119	116¾		199,972,900	100	do pfd	$1¾Q	Sept. 15, 25	8,000	117⅜	117¾	116⅞	117	0
8⅜	2⅜	6¼	2⅜	(sh)	1,121,268	N.P.	Superior Oil Corp	.....	Dec. 20, 20	2,200	3⅛	3¼	3	3¼	+ ⅛
45⅜	37¾	53	42¾	$	164,450,000	$25	The Texas Co	75cQ	Sept. 30, 25	31,300	47⅜	48⅜	46¾	47⅝	— ⅛
15¾	8	23¾	10¾		8,380,340	10	Texas Pacific Coal & Oil	.....	June 30, 23	9,300	11⅜	12¾	11⅜	11⅝	— ⅜
.....	.....	36¼	30¾	(sh)	16,590,000	N.P.	Tide Water Oil Co	25cQ	Sept. 30, 25	4,200	32⅛	33	30⅞	30⅞	—2
.....	.....	100	100		$25,039,000	$100	do 5% pfd	.....	.....	100	100	100	100	100	0
6¼	3¾	5⅞	3½	(sh)	3,742,029	N.P.	Transcontinental Oil Co	.....	.....	20,500	3¾	3⅞	† 3½	3½	— ⅛
39	35	43¾	33¾	$	40,490,800	$25	Union Oil of California	45cQ	Aug. 10, 25	5,400	33⅞	34	33⅜	33⅞	+ ⅛
132¾	94	154	118		18,227,300	$100	Union Tank Car Co	$1¾Q	Sept. 1, 25	500	125	125	122¼	123¼	—2¾
116¾	106¾	117¾	113¾		12,000,000	100	do pfd	$1¾Q	Sept. 1, 25	100	115⅛	115⅜	115⅛	115¾	— ⅛
29¾	23¾	31¾	25¾	(sh)	490,000	N.P.	White Eagle Oil & Ref	50cQ	July 20, 25	1,400	25½	26	25½	26	+ ¼

*New High †New Low xEx-Dividend Total Sales 503,090

Standard Oil Stock Traded In New York Curb Market

1924 High	1924 Low	1925 High	1925 Low		Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Sept. 25 Sales	First	High	Low	Last	Ch'ge
18¾	14¾	26¾	18	£	3,000,000	£1	Anglo American	45cS.A.	Nov. 15, 24	2,200	22¾	22¾	21¾	22	0
4¾	2	4	2	(sh)	500,000	N.P.	Atlantic Lobos	.....	.....	1,300	2	2½	2	2	0
16	5	12¾	3	$	10,000,000	$10	do pfd	.....	.....	200	3¾	3¾	3¾	3¾	0
265	155	240½	205		1,000,000	$100	Borne-Scrymser	‡24S.A.	Apr. 15, 25	50	235	235	230	235	0
85½	51	72	56		10,000,000	50	Buckeye Pipe Line	$1Q	Sept. 15, 25	110	57¼	57¼	57	57	+ ½
52½	47¾	70	48¾		3,000,000	25	Chesebrough Mfg. Co	62½cQ	Sept. 30, 25	1,200	63½	63¾	63	63¾	+ ¼
115	112	115	110		1,000,000	100	do pfd	$1¾Q	Sept. 30, 25	.....	.....	.....	.....	.....	.....
.....	.....	31¾	21¾		30,208,590	$10	Continental Oil (Maine)	25cQ	Sept. 15, 25	26,200	23½	23¾	22⅝	23	— ⅜
20	11¾	17	10¾		1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	500	16⅜	17	16⅜	17	+ ⅛
149	110¾	156	132		3,000,000	100	Cumberland Pipe Line	$3Q	Sept. 15, 25	20	144	144	144	144	+1
105	74	96	69¾		5,000,000	100	Eureka Pipe Line	$1Q	Aug. 1, 25	20	70½	70⅝	70½	70⅝	— ⅛
69¾	52	65	34		16,000,000	100	Galena Signal Oil	.....	June 30, 25	1,345	35	35¾	†34	35⅜	+ ¼
113	100½	105	100		4,000,000	100	do new pfd	$2Q	Sept. 30, 25	80	101⅛	101⅜	101⅛	101⅜	0
116	110	114	103		2,000,000	100	do old pfd	$2Q	Sept. 30, 25	270	106	106	†103	106	0
43¾	34¾	72¾	42¾		43,750,000	25	Humble Oil & Ref	50cQ	Oct. 1, 25	11,600	61¾	63¾	61¾	63	+ ⅜
161	120	154½	127		20,000,000	100	Illinois Pipe Line	$6S.A.	June 30, 25	50	136½	138	135½	136	—2¾
.....	.....	34¾	27¾	(sh)	6,275,640	N.P.	Imperial New w.i	25cQ	Sept. 1, 25	100	31⅜	31⅝	31⅜	31⅜	+ ⅛
100	66	84	65½	$	5,000,000	50	Indiana Pipe Line	$1Q	Aug. 15, 25	140	67	67	†65½	65½	—1½
24¾	16¾	28¾	22¼	(sh)	7,118,138	N.P.	International Petroleum	25c	Sept. 30, 25	25,600	26¼	26¾	25⅞	26⅜	— ⅛
162	122	159	130½	$	180,247,100	100	Magnolia Petroleum	$1Q	July 5, 25	230	139	139	136½	139	0
25⅞	20⅝	25¾	19⅜		6,362,500	12½	National Transit	25cQ	Sept. 15, 25	400	20	20⅜	20	20⅜	+ ⅛
57	54½	79	50		5,000,000	100	New York Transit	75cQ	July 15, 25	70	54½	54½	53	53	—1½
107½	72	88	78		4,000,000	100	Northern Pipe Line	$3S.A.	July 1, 25	140	78½	79½	78	79¼	+1½
79½	55	75	60¼		60,000,000	25	Ohio Oil Co	50cQ	Sept. 30, 25	5,200	62⅝	63¾	61¾	63	+ ⅜
43	27	44¾	23		10,000,000	25	Penn.-Mex. Fuel	50c	May 21, 25	100	23	23	23	23	—1
54¾	49½	65½	45⅞		60,000,000	25	Prairie O. & G	.....	July 31, 25	23,900	47½	49¼	46⅝	49	+1¾
111	100	127⅝	106		81,000,000	100	Prairie Pipe Line	$2Q	July 31, 25	1,250	124½	126	122	122	—2¾
230	175	259	200		4,000,000	100	Solar Refining Co	$5S.A.	June 20, 25	50	215	215	210	210	—5
100	90½	103	29		10,000,000	100	Southern Pipe Line Co	$1Q	Sept. 1, 25	200	76¼	76½	75½	75½	—1½
171	117	197	139		20,000,000	100	South Penn Oil Co	.....	Sept. 30, 22	230	157½	157½	155½	157½	+ ½
89	68	84	58½		3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 25	30	61	61	†58½	58½	—2½
83¾	54½	70	59½		823,756,258	25	S. O. Indiana	62½cQ	Sept. 15, 25	28,900	61⅞	62	61	61¾	+ ⅛
30¼	32½	46	30½		8,000,000	25	S. O. Kansas	.....	June 16, 24	1,300	31¾	32	31⅛	31½	— ⅛
121¾	101	134¼	114¾		16,864,434	25	S. O. Kentucky	$1Q	Sept. 30, 25	4,800	129⅞	*134¾	128⅞	133¾	+3¾
199	198	270	231		3,000,000	100	S. O. Nebraska	$5S.A.	June 20, 25	50	235	236	235	236	—1
48	37¾	48¾	40		$25,324,650	25	S. O. New York	35cQ	Sept. 15, 25	8,500	41¼	41¾	40½	41	— ⅜
377½	275	369	338		14,000,000	100	S. O. Ohio	82½Q	Oct. 1, 25	330	352	365	352	365	+11
136	115	128	116		7,000,000	100	do pfd	$1¾Q	Sept. 1, 25	.....	.....	.....	.....	.....	.....
31	20	27	12¾		1,722,931	25	Swan-Finch Oil Corp	.....	Nov. 1, 19	60	18	18½	17	17	—1⅜
85½	56¾	96¾	80¼		61,523,075	25	Vacuum Oil Co	‡50cQ	Sept. 19, 25	5,200	87	88¾	85	88½	+1¼
80	25	85	80		100,000	10	Washington Oil Co	.....	Jan. 31, 22	.....	.....	.....	.....	.....	.....

Borne Scrymser $2 extra April 15 ‡Vacuum 50c extra Mar. 20, June 20, Sept. 19



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New York Bonds

Week Ended Sept. 26, 1925

	High	Low	Last	Ch'ge
Associated Oil 6s	102⅞	102¾	102¾	+ ¼
Atlantic Ref'g 5s	99⅞	99⅜	99¾	+ ⅛
Barnsdall 8s	105	105	105	0
California Pet. 6½s	104½	103½	103½	— ½
Empire Gas & Fuel 7½s	104¼	103¾	104	— ¼
General Asphalt 6s	104⅝	104	104	0
Humble O. & R. 5½s	101⅝	101	101	— ½
Mid-Continent Pet 6½s	100½	98⅝	100⅜	+1⅜
Pan-American 7s	105⅞	105⅜	105⅜	0
do 6s	106½	105⅝	106	0
Prod. & Ref. 8s	110⅜	110	110⅛	— ⅛
Sinclair Cons. 7s	92¼	91½	91¾	— ¼
do 6½s	87	86¼	86½	— ½
do 6s	106½	105	105	—1
Sinclair C. O. R. 6s	100½	100	103⅜	+ ⅛
Sinclair P. L. 5s	85¾	84⅜	85	+ ¼
Skelly Oil 6½s	111⅞	110⅞	111⅞	0
Union of Calif. 6s	103½	103½	103½	— ½
do 5s	100	100	100	+ ¼
.....				
.....				
.....				

New York Curb Bonds

Week Ended Sept. 26, 1925

	High	Low	Last	Ch'ge
Cities Service 6s	90⅛	90⅛	90⅛	0
do 7s B	176½	176½	176½	+ ⅜
do 7s C	125¼	124¾	125	— ⅜
do 7s D	103¼	102⅝	102⅝	— ⅛
do 8s E	112½	112½	112½	+ ½
Galena Signal 7s	105½	104½	104½	— ½
Galena Sig. Texas 6s	100	100	100	0
General Pet. 6s	101⅜	101⅜	101⅜	0
do 5s w. k	94⅞	94¾	94⅞	0
Gulf Oil 5s	100	99⅜	99¾	+ ⅛
do 5½s '27	101⅛	101⅛	101⅛	— ⅛
do 5½s '28	101¾	101¾	101¾	— ⅛
Phillips Pet. 7½s	104½	104½	104½	— ⅛
Pure Oil 6½s	102¼	102	102	— ¼
S. O. New York 6½s	106¾	106⅛	106⅛	— ⅛
Sun Oil 5½s	98	97⅜	97¾	— ⅛
Tidal Osage 7s	104½	103½	104	+ ½
Transcontinental 7s	96	94¼	95¼	+ ¼
Union of Calif. 5s	95	95	95	+4
Union Oil Prod. 8s	39½	37	39½	+4
Vacuum Oil 7s	105¼	104⅞	104⅞	— ⅛
Valvoline 7s	105	105	105	+1

New York Curb Market

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions week ended Sept. 25 Sales	First	High	Low	Last	Ch'ge
.....	.....	11½	2⅛	....	Amer. Maracaibo	10,200	7¾	8¼	7⅜	7½	— ⅛
7	4	8⅜	5	$10	Arkansas Nat. Gas.	3,700	7⅛	7¼	6	6	—1
36⅝	32	41	38	25	British-American	1,600	40	*41	40	41	+ ⅛
6⅜	2¾	7½	2¾	25c	Carib. Syndicate	9,900	6⅛	6⅛	5¼	5¼	— ⅜
.....	.....	43	35	$20	Cities Service	14,100	38⅜	38½	37⅞	38⅛	— ⅜
82⅞	67¾	84¼	80¼	100	do pfd	900	83⅞	84	83¾	84	0
7¾	6⅛	8	7¼	10	do pfd. B	600	7¾	7⅞	7¾	7⅞	0
19	13¼	21⅜	17½	10	do bankers' sh	300	19⅛	19⅜	19⅛	19⅛	0
1⅝	.25	2⅝	.60	N.P.	Colombia Syndicate	65,400	2½	* 2⅝	1⅞	1⅞	— ½
10⅝	2¼	14⅛	8¼	N.P.	Creole Syndicate	3,600	8¾	9	8½	8⅞	+ ⅛
.....	.....	12¼	7⅜	N.P.	Crown Central	200	8	8	7⅞	7⅞	+ ⅛
8	1½	7	3	N.P.	Derby Oil & Ref	300	3	3½	† 3	3½	+ ½
34¼	17½	27	18	N.P.	do pfd	.....	.....	.....	.....	.....	.....
.....	.....	3⅞	1⅜	N.P.	Gibson Oil	6,500	2	2⅜	1⅞	2	— ⅛
5¾	1¾	3¾	1½	N.P.	Gilliland v.t.c	700	2	2	1⅞	1⅞	— ⅛
67⅜	56	79	68½	$25	Gulf Oil Corp	5,000	74	74½	73½	74¼	+ ¼
7	1⅝	3⅞	2¼	N.P.	Kirby Petroleum	3,200	2⅝	3¼	2½	3¼	+ ⅜
6¾	2⅞	7¼	4⅛	N.P.	Lago Petroleum	23,200	4⅞	5⅛	4¾	4⅞	— ⅛
.....	.....	23¼	18¾	N.P.	Lion Oil Refining	400	18¾	18¾	†18¾	18¾	—1⅛
4⅞	4	4¼	1¾	N.P.	Marland of Mexico	100	2½	2½	2½	2½	— ½
1¾	.50	2⅝	.56	$10	Mexican-Panuco	14,300	2⅜	3¼	2⅜	3¼	+ ⅛
1⅝	.97	2	1	1	Mountain & Gulf	700	1½	1½	1½	1½	0
20¾	16	23½	18⅜	10	Mountain Prod	10,400	20½	20¾	20⅜	20¾	+ ⅛
6¼	3½	6⅜	3⅝	5	New Bradford Oil	900	5⅛	5⅛	5	5	— ⅛
44	17	8⅞	5	10	New England Fuel	.....	.....	.....	.....	.....	.....
.....	.....	19⅜	6¼	....	New Mex. & Ariz.	62,800	18	*19⅛	13½	14⅞	—3⅛
14	8⅜	12½	8¼	25	New York Oil	1,900	9	9¼	9	9	0
.....	.....	33	23¾	N.P.	Pan-Amer. Western	19,700	25⅝	*33	24⅝	29½	+4⅝
6	.70	1¾	.90	N.P.	Peer Oil Corp	9,100	1⅝	1⅝	1⅜	1½	0
18¼	12¼	28¾	16	$10	Pennok Oil	2,000	22	23	21½	22⅜	+ ⅛
57¾	5¾	44½	16	25	Red Bank Oil	900	25¼	27¾	24⅛	24⅛	+2⅜
.....	.....	33½	9	....	Reiter-Foster	6,100	16½	16¾	13½	15¼	—1½
5½	3	9½	3½	N.P.	Ryan Consolidated	1,300	4	4	3¾	3¾	— ¼
10¼	6	8⅝	6⅜	$10	Salt Creek Cons	300	6⅜	6⅜	6⅜	6⅜	— ⅛
27½	19⅛	28¾	24	10	Salt Creek Prod	3,500	25½	25½	24⅜	24¾	— ⅞
3¾	1½	3⅞	1⅜	5	Savoy Oil	.....	.....	.....	.....	.....	.....
.....	.....	46½	33¾	N.P.	Sun Oil	2,300	37½	37⅝	35¾	36¾	— ¾
16¼	6¼	13¾	9	10	Tidal Osage	400	9½	10	9½	10	+ ½
4⅛	2⅝	4⅞	1¾	5	Venezuelan Pet	8,800	1⅞	2¾	1⅞	2¼	0
.....	.....	31¼	22⅛	N.P.	Wilcox O. & G. new	1,600	23½	23½	†22⅝	22¾	—1¼
13⅞	4¾	7	3⅞	N.P.	Woodley Petroleum	800	4⅞	5⅛	4⅞	5⅛	— ¼

Pittsburgh Stock Exchange

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions Week Ended Sept. 25 Sales	First	High	Low	Last	Ch'ge
7	4	8⅛	5¼	$10	Arkansas Nat. Gas.	19,230	7	7	6	6	—1
40½	35⅓	78¼	69¼	N.P.	Columbia Gas	.....	.....	.....	.....	.....	.....
.....	.....	15	14⅞	$10	Devonian Oil	485	15	15	14⅞	15	0
.....	.....	112½	105¾	$100	Duquesne Lt. 7s pfd	90	112½	*112½	112	112	+1
30	30	110½	90	25	Fayette County Gas	24	95	95	95	95	0
33⅛	26¼	44⅛	32¼	25	Lone Star Gas	845	41⅜	42	41½	42	+ ½
33¼	28½	34½	31	25	Ohio Fuel Corp	1,912	33	33⅜	33	33⅜	+ ⅛
16⅛	11⅜	16¾	12⅜	1	Ohio Fuel Oil	1,964	14	14¼	14	14	0
28½	22⅜	31½	26	25	Oklahoma Nat. Gas	2,307	31	31	x30¼	30¼	— ¾
9¾	6	8¾	5	5	Pittsburgh O. & G.	50	5¾	5¾	5½	5½	— ⅛
10½	6	8½	6¼	10	Salt Creek Cons	50	6¼	6¼	6¼	6¼	— ¼
16½	8	13⅜	8¼	10	Tidal Osage	100	9¼	10	9¼	10	+ ¾
92	92	.....	.....	100	do pfd	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Market

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions Week Ended Sept. 25 Sales	First	High	Low	Last	Ch'ge
2¼	2¼	.....	.....	N.P.	Arkansas Fuel	.....	.....	.....	.....	.....	.....
1	.20	2½	.60	$5	Colombia Synd	.....	.....	.....	.....	.....	.....
.....	.....	15	13	N.P.	Devonian Oil	.....	.....	.....	.....	.....	.....
.70	.25	.60	.15	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
9½	5½	9	5½	10	Forest Oil	.....	.....	.....	.....	.....	.....
66¾	57	78½	64	25	Gulf Oil Corp	.....	.....	.....	.....	.....	.....
25¾	21	.....	.....	N.P.	International Pet	.....	.....	.....	.....	.....	.....
4½	4½	.....	.....	N.P.	Lago Petroleum	.....	.....	.....	.....	.....	.....
.....	.....	7	3¼	N.P.	Leonard Oil & Dvlp	49,747	6½	8½	6½	8	+1½
6	5	.....	.....	$10	Marshall Oil	.....	.....	.....	.....	.....	.....
2⅞	1½	2¾	1⅜	1	Oklahoma Eastern	.....	.....	.....	.....	.....	.....
.77	.35	.47	.30	10	Omar O. & G	.....	.....	.....	.....	.....	.....
8	3⅜	7	3	5	States Oil	.....	.....	.....	.....	.....	.....
.....	.....	4	2	$1	Texon Oil & Land	1,700	2	2	1⅞	2	+ ⅛
14	10	11	9	10	Tidal Osage	100	9¾	9¾	9¾	9¾	+ ¾

*New High †New Low xEx-Dividend

Ch'ge
0
+ 3/8
— 3/8
— 1/8
+ 1/2
— 1/2
0
0
0
+ 1/8
— 3/8
— 3/8
— 3/8
— 1/4
— 3/8
— 1/8
+ 1/4
+ 1/4
+4
+4
— 3/8
+1

25 Ch'ge
— 1/2
—1
+ 1/2
— 3/8
— 3/8
0
0
0
— 1/2
+ 3/8
+ 1/8
+ 1/8
.....
— 3/8
— 1/8
+ 1/4
+ 3/8
— 1/4
—1 3/8
— 1/2
+ 11
0
+ 1/8
— 1/8
.....
—3 3/8
0
+4 5/8
0
+ 1/8
+2 3/8
—1 1/2
— 1/4
— 1/8
— 7/8
.....
— 3/4
+ 1/2
0
—1 1/4
— 1/4

. 25 Ch'ge
—1
.....
0
+1
0
+ 1/2
+ 3/8
0
— 3/4
— 1/8
— 1/4
+ 3/4
.....

t. 25 Ch'ge
.....
.....
.....
.....
.....
.....
.....
+1 1/2
.....
.....
.....
.....
+ 1/4
+ 3/4

NEWS